

Can sense of coherence predict therapeutic outcome of a brief guided self-help intervention?

Mhairi Elizabeth Williams



Doctorate in Clinical Psychology
The University of Edinburgh
2010

I, Mhairi Elizabeth Williams, declare that this thesis, submitted in August 2010, is my own work and has not been submitted for any other academic degree or professional qualification.

.....
MHAIRI ELIZABETH WILLIAMS, August 2010

ACKNOWLEDGEMENTS

Firstly and most importantly I would like to thank the participants of my study for taking part especially when this may have been a challenging time.

A very important thank you to my academic supervisor Dr Emily Newman for, your patience in reading countless drafts and endless emails, I really appreciated your expertise and advice. I would also like to thank my clinical supervisor, Dr Katie Whyte for supporting me not only during this thesis but throughout the past three years of my training. Your personal support and clinical advice have been invaluable especially at times when qualifying felt so out of reach. I have greatly enjoyed being your trainee and cant promise I won't be knocking at your door when qualified!

I would also like to thank my honorary supervisor and friend Dr Hamodi Kayal for helping me develop this research and for his continued support and advice, no matter the time of day!

A very special thank you to Dr Rosie Isles and the self-help team for, welcoming my study, their patience and perseverance during the long recruitment stage and despite my continued presence and requests for always greeting me with a smile! Your interest and support was pivotal to the completion of this research and was greatly appreciated

Thank you to my friends and colleagues for your support, reading of drafts and for not changing your telephone number: Dr Frances Scrutton, Dr Vicki Robinson, Dr Catherine Nesbitt and Dr Christine Watson.

I would also like to thank all of my friends and colleagues in the Shire for your support and making the past five years of training a fun experience! I am looking forward to celebrating with you all.

Thank you to my loving parents, Raymond and Mary for years of encouragement (and proof-reading), support and making me believe anything is possible. Also to my brother Dr Mark Williams, your enthusiasm for research helped to keep me inspired and I could not have done this without your support. To Lindsay thank you for your invaluable knowledge of word and I am glad you will soon be part of the family. Also to my brother Christopher and honorary sister Donna for encouraging me to succeed and helping to keep it in perspective!

Finally, to Murray for giving me the reason to keep going without your love and support this would not have been possible! I am looking forward to what the future has to hold for us.

Table of Contents

| | |
|---|-----------|
| Declaration of own work..... | 2 |
| Acknowledgements..... | 3 |
| Contents page | 4 |
| List of Figures and Tables..... | 6 |
| Abstract | 7 |
| | |
| 1. CHAPTER ONE: INTRODUCTION..... | 8 |
| 1.1. General Introduction | 8 |
| 1.2. Self-Help..... | 9 |
| 1.2.1. Government context | 9 |
| 1.2.2. Models of self-help..... | 12 |
| 1.2.3. Conclusion..... | 14 |
| 1.3. Salutogenesis | 14 |
| 1.4. Sense of coherence..... | 16 |
| 1.4.1. SOC, hardiness, self-efficacy, resilience and fortitude..... | 20 |
| 1.4.2. Stability of SOC | 20 |
| 1.4.2.1. SOC and adverse life events..... | 22 |
| 1.4.2.2. SOC, employment and SES..... | 24 |
| 1.4.2.3. SOC and age..... | 26 |
| 1.4.2.4. Conclusion..... | 27 |
| 1.4.3. Assessing SOC | 27 |
| 1.5. SOC and mental health..... | 28 |
| 1.6. Coping | 32 |
| 1.6.1. Transactional model | 32 |
| 1.6.2. SOC as an inner coping resource..... | 33 |
| 1.6.3. Salutogenic model of coping..... | 34 |
| 1.6.4. SOC and coping strategies..... | 35 |
| 1.6.5. SOC, coping and health..... | 36 |
| 1.7. Rationale for the current study | 39 |
| 1.8. Aims and hypotheses..... | 40 |
| | |
| 2. CHAPTER TWO: METHODOLOGY | 42 |
| 2.1. Setting..... | 42 |
| 2.2. Design..... | 42 |
| 2.3. Participants | 43 |

| | |
|--|-----------|
| 2.4. Procedure | 44 |
| 2.4.1. Prior to 1 st appointment | 46 |
| 2.4.2. 1 st appointment- in clinic | 47 |
| 2.4.3. After last appointment | 47 |
| 2.5. Power calculation | 48 |
| 2.6. Measures | 49 |
| 2.6.1. Sense of coherence scale | 49 |
| 2.6.2. Brief coping orientations to problems experienced scale | 51 |
| 2.6.3. Hospital anxiety and depression scale | 54 |
| 2.6.4. Patient Global Impression of Severity and Improvement Scale | 55 |
| 2.6.5. Socio-demographic form | 56 |
| 2.6.6. Socio-economic status | 57 |
| 2.7. Ethical considerations | 58 |
| 2.8. Data analysis | 60 |
| 3. CHAPTER THREE: RESULTS | 62 |
| 3.1. Detailed participant characteristics | 62 |
| 3.1.1. Presenting Problems | 64 |
| 3.2. Descriptive statistics for the study measures | 64 |
| 3.2.1. Sense of coherence scale | 66 |
| 3.2.2. Hospital anxiety and depression scale | 67 |
| 3.2.3. Brief coping orientations to problems experienced scale subscales | 69 |
| 3.3. Correlational analysis for the main study variables | 70 |
| 3.4. Hypothesis 1 | 72 |
| 3.5. Hypothesis 2 | 73 |
| 3.6. Hypothesis 3 | 73 |
| 3.7. Hypothesis 4 | 74 |
| 3.8. Secondary aims | 78 |
| 3.9. Hypothesis 5 | 78 |
| 3.10. Hypothesis 6 | 80 |

| | |
|--|------------|
| 4. CHAPTER 4: DISCUSSION | 81 |
| 4.1. Study aims | 81 |
| 4.2. Summary of findings..... | 81 |
| 4.3. Limitations and suggestions for future research | 87 |
| 4.4. Clinical relevance..... | 94 |
| 4.5. Conclusion | 96 |
| 5. References | 97 |
| 6. Appendices | 112 |

List of Tables

| | |
|--|----|
| Table 3.1: Demographic characteristics of study participants | 63 |
| Table 3.2: Descriptive statistics for the main study variables..... | 65 |
| Table 3.3: Antonovsky's normative table of mean SOC scores with additional studies | 67 |
| Table 3.4: Clinical severity for the sample groups | 68 |
| Table 3.5: Pearson's correlational analysis for the main study variables | 71 |
| Table 3.6: Spearman's correlational analysis for SOC, PGI-S and PGI-I | 72 |
| Table 3.7: Hierarchical multiple regression analysis for post anxiety (HADS)..... | 75 |
| Table 3.8: Hierarchical multiple regression analysis for post depression (HADS) | 77 |
| Table 3.9: Frequency table for socio-economic status (SIMD09) | 79 |

List of Figures

| | |
|--|----|
| Figure 1.1: Stepped care model..... | 11 |
| Figure 2.1: Overview of study procedure | 45 |
| Figure 2.2: Brief COPE three composite subscales | 53 |

Word Count 24 626

Abstract

Background: The construct sense of coherence (SOC) is proposed to explain the variation in the way people cope and it has been linked with positive mental health. Evidence suggests that level of SOC may be able to predict therapeutic outcome. There is a lack of evidence regarding individual predictors for treatment response of guided self-help services. Therefore, SOC is an important construct to consider.

Objectives: The purpose of this study was to investigate whether a client's sense of coherence at the start of a guided self-help intervention could predict their therapeutic outcome. The possibility that coping style mediated this relationship was also examined.

Method: The study employed a longitudinal survey design. Participants were patients aged 30-64 years attending a guided self-help service for mild-moderate psychological difficulties. Participant data was collected pre and post intervention (3 weeks to 3 months after initial appointment).

Results: A significant negative association was found between SOC and pre intervention anxiety and depression scores. No significant relationship was found between SOC and post intervention anxiety and depression scores (therapeutic outcome). Multiple regression analysis found that sense of coherence and coping style were not significant predictors of therapeutic outcome.

Conclusions: It is important to determine the causality of SOC's relationship with mental health because if SOC can be influenced via psychological intervention this may promote positive mental health and effective coping. Therefore, further research is required to determine if SOC has clinical application.

CHAPTER 1: INTRODUCTION

1.1. General Introduction

There has been a noticeable paradigm shift away from medications as first line treatments and towards effective use of psychological therapies within the mental health care system in Scotland over the last ten years. In the past, the theoretical underpinning of the NHS has been dominated by the traditional medical model focused on treating mental illness (Wells, in press). In recent years the limitations of relying heavily on this approach have been identified, such as the high costs of prescribing antidepressants (Scottish Executive, 2006). Moreover, the high rates of suicide and mental illness in Scotland have demonstrated the need for a new approach and for the reform of mental health policy and services (Smith-Merry, 2008). All of these factors have resulted in emphasis being placed on the promotion and improvement of mental 'health' and 'well-being' in Scotland, as well as the treatment of mental 'illness' (NHS Health Scotland, 2007). This has been reflected in government policies and targets introduced following the launch of the National Programme for Improving Mental Health and Wellbeing in Scotland in 2003 (Scottish Executive, 2003). One of the government targets set is to increase access to psychological therapies as a result of high public demand (Wells, in press). A matched/stepped care model within psychology services has been proposed as a way of meeting this demand (Scottish Government, 2008).

The shift in focus from a pathogenic disease model, treating illness, to a salutogenic focus on health promotion (how to achieve health) was at the heart of Antonovsky's salutogenic model introduced in 1979 (Antonovsky, 1979). Antonovsky developed his theory as an attempt to understand and explain why some people, despite experiencing many life stressors, can maintain a good level of health whilst others do not (Antonovsky, 1987). He proposed the salutogenic concept, sense of coherence (SOC), which he believed could account for the variation in the way people cope.

Antonovsky described sense of coherence as the way in which people view their life, for example whether they perceive themselves as being able to manage in any given situation (Lindström & Eriksson, 2006). High (or strong) SOC has been linked with successful coping and positive health outcomes (Antonovsky, 1979, 1987, 1991; Hawley *et al.*, 1992; Langius & Björvell, 1996; Larsson & Kallenberg, 1996). The concept will be described in greater detail later in this chapter.

There is also evidence (although limited) suggesting that level of SOC may be linked with and could predict therapeutic outcome, with clients with higher SOC benefiting more from psychological intervention (Petrie & Azariah, 1990). Therefore, the current proposed study aims to test whether clients' SOC at the start of a guided self-help treatment can predict their therapeutic outcome. The study also aims to explore the possibility that coping style mediates this relationship.

The findings may help determine whether SOC could be used as a screening measure to indicate which individuals would benefit from psychological intervention such as self-help. Findings may also identify when self-help would not be appropriate (possibly for individuals with lower SOC) and referral to another service may be indicated (i.e. adult psychology service). Being able to identify and assess factors that may enable services to signpost individuals to the correct level of care might facilitate the proposed stepped/matched care model.

1.2. Self-Help

1.2.1. Government Context

Government targets to increase access to psychological services and pressure from patient groups has created an increasing demand for self-help services for the

treatment of mild to moderate psychological difficulties. This is partly based on the increasing evidence base for psychological therapies, high prevalence rates of depression and suicide, and an aim to reduce the costs of prescribing antidepressants (Smith-Merry, 2008). A recent draft document, the Wells Report, takes a Scottish strategic perspective proposing how best psychology services can be structured to meet demand. They support a stepped care model with self-help interventions playing a key role (Bower & Gillbody, 2005; Wells, in press). The stepped care model proposed consists of five levels, with severity of presenting problem and intensity of treatments increasing from level one through to level five (Figure 1.1). Self-help treatments fit within the lower intensity treatments at level 2. Stepped care models have been proposed as a model of choice throughout the UK, particularly in England with emphasis on Increasing Access to Psychological Therapies, and in the USA for the treatment of depression (Department of Health, 2007; National Collaborating Centre for Mental Health, 2005; Scogin *et al.*, 2003).

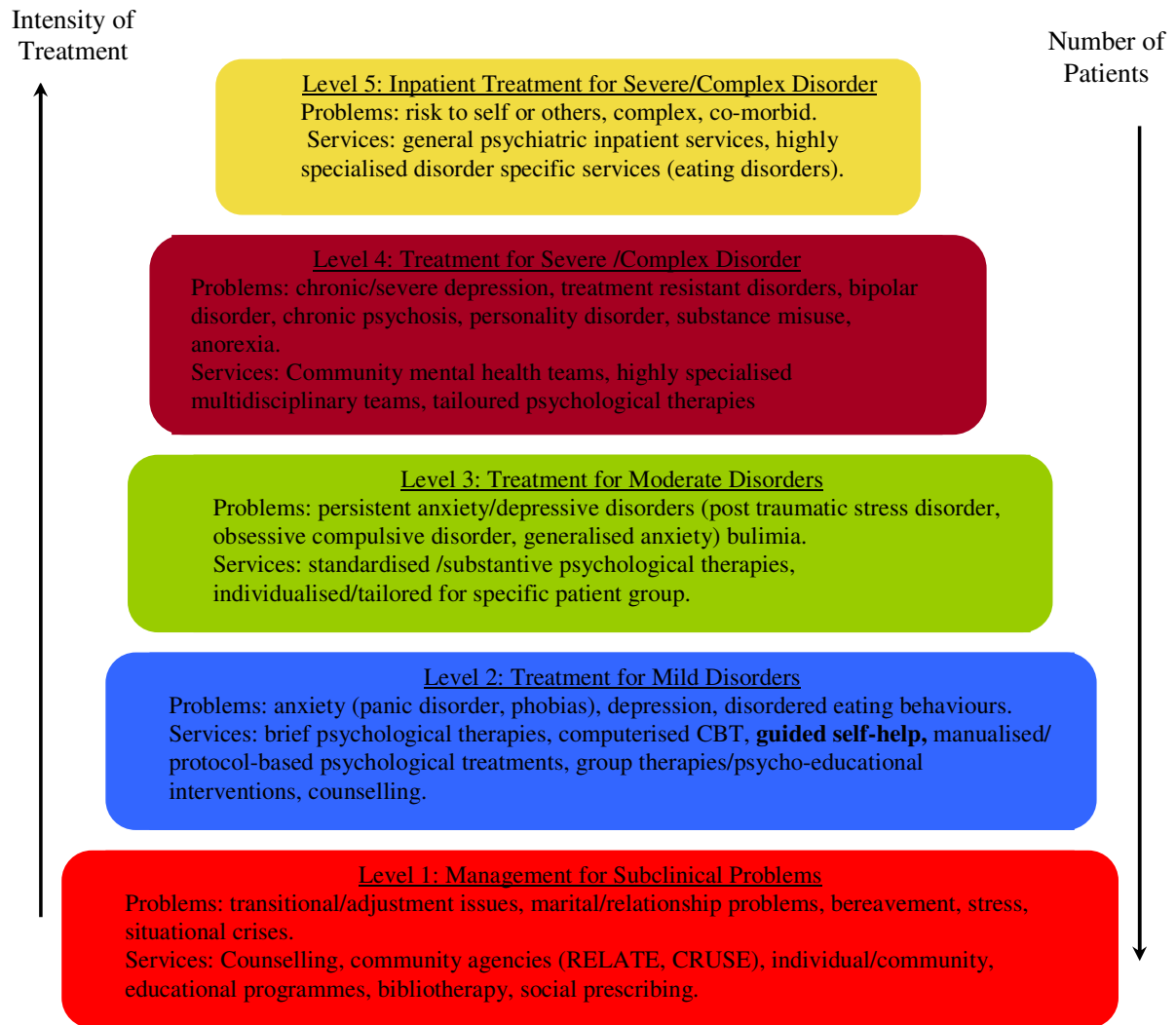


Figure 1.1: Stepped Care Model (Wells, in press p. 36).

Self-help interventions enable services to meet demand and reduce the need for higher intensity treatments and specialist therapists (Mead *et al.*, 2005). This is particularly important given a lack of highly trained psychology professionals due to lengthy training processes. Self-help interventions can take many forms; condition specific reading materials (traditional bibliotherapy), computer therapy, self-help materials via audiotape, videotape and telephone (Richards *et al.*, 2003). Self-help interventions are normally based on Cognitive-Behavioural Therapy (CBT)

techniques or principles, as CBT is recognised as the most effective treatment for anxiety and depression (National Institute for Clinical Excellence, 2004 a, b,). None of these forms of ‘pure’ self-help require therapist contact and thus would make the greatest impact on access to services and waiting lists (Gellatly *et al.*, 2007). Moreover, the evidence base supporting the effectiveness of self-help is continuing to increase (Anderson *et al.*, 2005; Clark *et al.*, 2009; Gellatly *et al.*, 2007; McKendree-Smith *et al.*, 2003).

1.2.2. Models of Self Help

Self-help techniques have been found to lead to significant improvements for a wide range of psychological difficulties as concluded in a number of systematic reviews and meta-analyses (Bower *et al.*, 2001; Gould & Clum, 1993; Marrs, 1995). However, recent evidence has demonstrated that guided self-help (self-help supported by minimal contact with a therapist), is more effective than self-administration (Gellatly *et al.*, 2007). Lovell *et al.* (2008) defined guided self-help as “involving a CBT-based self-help resource and limited support from a health care professional”, (p.2). Gellatly and colleagues (2007) suggest that guided self-help could “provide the optimal balance between efficiency and effectiveness” (p.1218). However, the amount of contact with a self-help worker/therapist varies considerably throughout different services (Newman *et al.*, 2003). Moreover, the structure of self-help is variable with the format of choice proposed to be a ‘two plus one’ model (Richards *et al.*, 2002). This incorporates, after assessment, two hour-long sessions (weekly or fortnightly) and a three month-follow up session (Johnson & Gelso, 1980). This model, using a CBT approach, has been found to be effective for the treatment of mild depression (Barkham *et al.*, 1999).

Guided self-help interventions are normally time-limited and supported by self-help workers who have limited levels of experience often referred to as ‘paraprofessionals’ (Richards *et al.*, 2002, 2003). This enables self-help services to

be cost effective, having a high throughput which does not rely on experienced professionals involving high training and employment costs (Farrand *et al.*, 2008). The Farrand *et al.* (2008) study investigated the efficiency and effectiveness of guided self-help clinics when supported by paraprofessionals (with limited experience) and compared their results to those of Lovell *et al.* (2003), who explored the effectiveness of a pilot self-help clinic supported by an experienced mental health nurse. Levels of effectiveness in the two self-help clinics were found to be comparable. Farrand *et al.* (2008) reported clinically reliable and significant change to be 55% (anxiety) and 58% (depression) at final session and 63% (anxiety) and 62% (depression) at the 3 month follow-up. The Lovell *et al.* (2003) study reported clinically reliable and significant change to be 59% post therapy, 48% at 3 month follow-up and 61% at 6-month follow-up. Although rates of improvement were similar it appears that gains made in the Lovell *et al.* (2003) study had dropped, but then increased at six month follow-up, therefore it would have been interesting to have six month follow-up data from the Farrand *et al.* (2008) study for comparison.

A potential problem with comparing the results from these studies is that they employed different effectiveness measures. Farrand *et al.* (2008) assessed effectiveness by employing the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) at pre, post and three month follow-up periods. This measure is supported for its use in primary care populations for identifying anxiety and depression (Runkewitz *et al.*, 2006). However, the Lovell *et al.* (2003) study used the Clinical Outcome in Routine Evaluation (CORE; Barkham, *et al.* 1998). This self-report measure assesses well-being functioning, symptoms and risk. Despite this, both studies support the effectiveness of guided self-help with the Farrand *et al.* study also supporting this when delivered by paraprofessionals. The average number of sessions attended in the Farrand *et al.* (2008) study was 3.9 and 3.4 in the study by Lovell *et al.* (2003). Therefore, Farrand *et al.* (2008) recommend that a 'four plus one' session model would be favourable. However, the findings of both studies may be hard to generalise as they were both uncontrolled, conducted in

real-life practice. Therefore, to draw a clearer conclusion regarding effectiveness randomised controlled trials are recommended.

1.2.3. Conclusion

The effectiveness of self-help, in particular guided self-help approaches, has been supported in the literature. However, the studies undertaken have tended to be uncontrolled making findings difficult to generalise and calling for randomised controlled trials to be conducted. Moreover, there is no consensus as to how the self-help interventions should be delivered including format, content and what level of expertise self-help workers should have (although interestingly, Gellatly *et al.* (2007) reported no association between length of session, therapist experience, content or format of delivery and outcome in their review). In addition, more focus should be placed on factors predicting treatment response and effectiveness as they remain unknown (Newman, 2000). The stepped care model suggests that patients may become stuck unhelpfully at lower levels of treatment intensity unless these factors are identified and responded to within therapy (Clark *et al.*, 2009). This research aims to examine the role of sense of coherence as a possible predictor in the outcome of self-help, thereby attempting to answer some of these questions.

1.3. Salutogenesis

The theory of salutogenesis was formally introduced by Aaron Antonovsky in his book *Health, Stress and Coping* in 1979. The theory stemmed from his work into the menopause with Israeli women, some of whom had survived the concentration camps of the Second World War. Antonovsky noticed that despite their traumatic experience a number of the women had coped well and managed to sustain a good level of health in their lives (Antonovsky, 1987). This led to his interest in exploring the determinants of staying healthy (Eriksson & Lindström, 2005).

Antonovsky (1979) coined the term Salutogenesis, from the latin 'salus' meaning health, and greek 'genesis' meaning origin, to explain his focus on the origin of health. The salutogenic movement introduced a new paradigm within health care, placing emphasis on factors fostering health, providing an alternative to the pathogenic model, which places emphasis on identifying risk factors for disease and perceives a person as healthy when absent of illness (Keyes, 2007; Lindström & Eriksson, 2005; Lindström & Eriksson, 2006). The pathogenic model has been criticised for its limited ability to explain health, its focus on eradicating disease and reliance on a dichotomous classification system; health/illness (Antonovsky, 1996; Lalonde, 1974). From this stance, it views an individual as being within one of two opposing static positions; health or illness/disease. However, Antonovsky (1979) argued that this is a simplistic way to view health and believed that as humans we cannot be defined as either healthy or diseased, but instead are heterostatic in nature. He proposed that we exist somewhere on a health ease/dis-ease continuum with our aim to maintain our position or to move towards the healthy end (Antonovsky, 1979). This provides a more holistic approach, taking into account the whole person, their social context and the meaning of the illness for the individual, which the pathogenic model fails to recognise (Kleinman, 1995).

Moreover, the pathogenic model is focused on disease aetiology, perceiving illness as independent of the individual with treatments such as medication (Bahrs *et al.*, 2003). This approach has the potential to lead to disempowerment of the individual with the understanding that recovery or cure is not within their capability. However, the salutogenic approach perceives disease and stress as being natural, a part of normal life and places emphasis on the individual's coping resources to stay healthy (Bahrs *et al.*, 2003; Lindström & Eriksson, 2006). This approach therefore identifies that individuals can be active participants in their own health. Although Antonovsky highlights the potential drawbacks of the pathogenic model, he believes his salutogenic theory should exist to complement it rather than replace it (Antonovsky, 1979).

1.4. Sense of Coherence

Central to his salutogenic theory, Antonovsky identified the sense of coherence (SOC) concept. He proposed that we each possess a SOC, a stable personality orientation that guides how we cope, promoting health and which explains the individual differences in people's capacity to respond to stressors (Antonovsky, 1990; Antonovsky, 1993). Antonovsky developed the sense of coherence concept, after observing through his health research with Israeli women that some people had maintained a good level of health despite experiencing traumatic events in their life. The concept was not initially empirically based but stemmed from Antonovsky (1979) exploring the existing research base examining psychological and social factors to explain the different ways people respond to stress. He stated that he explored the SOC concept further by conducting 51 in-depth unstructured interviews with people who had experienced major trauma but were said to be coping very well. The interviews were guided by asking the individuals how they saw their lives. The individuals were then classified into high and low SOC and themes were explored from the data. From this work Antonovsky (1987) reported that three themes emerged which he proposed are the three main components of the sense of coherence. Following this work Antonovsky and later other researchers began to empirically test the concept and its three components. This research is discussed when exploring the stability of SOC, the interrelations between the three components and the associations found between SOC and health.

He formally redefined SOC in his 1989 book as:

“A global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement.” (1987, p.19).

SOC is therefore, described as being composed of three main components (Antonovsky, 1987):

1. Comprehensibility (cognitive component)
2. Manageability (instrumental or behavioural component)
3. Meaningfulness (motivational component)

In these terms, someone with a strong SOC will be likely to see the world and its stressors as understandable and predictable (comprehensibility), feel they have the resources to meet any demands placed on them (manageability) and believe the demands are worthy of investment (meaningfulness; Antonovsky, 1987). Antonovsky believed the meaningfulness component is the most vital part of the SOC construct, the motivational element (Antonovsky, 1987; Langeland *et al.*, 2007). For example, if challenges in life are viewed as being meaningful (making emotional sense) this provides motivation for the individual to manage and understand life's problems (Langeland *et al.*, 2007). Therefore, if an individual does not see challenges as being meaningful (scoring low on this component) they are unlikely to score highly on the other two components (comprehensibility and manageability). Antonovsky (1987) reported that comprehensibility is the second most important component. He suggested that being able to understand stressors (make cognitive sense of them) is essential to score highly in manageability (believing you have the resources to meet demands). Thirdly, manageability is important (behavioural component) because if an individual believes they do not have the resources to meet demands (low in manageability) this can reduce the meaningfulness and motivation to invest in the challenge, inevitably reducing efforts to cope (Antonovsky, 1987). Therefore, Antonovsky (1987) highlighted that successful coping is linked to all three components and dependent on SOC as a whole construct. Thus he intended that SOC should be examined as a whole, not separating the components (Feldt *et al.*, 2007).

Based on research findings Antonovsky (1987) explained that the three components were highly inter-related “but they were not perfect” (p.19). For instance, Antonovsky found that certain life experiences can lead to an individual being high on one component and low on another. He used the example of a middle-class housewife, with her life situation possibly resulting in her being high on manageability and comprehensibility but low on meaningfulness.

Within the salutogenic framework movement towards the health end of the health ease/dis-ease continuum is dependent upon the individual’s personal resources, (Lindström & Eriksson, 2005). Antonovsky termed these resources General Resistance Resources (GRR’s), which are psychosocial, biological and material factors that contribute to the development of SOC (Lindström & Eriksson, 2006). They take the form of money, intelligence, knowledge, self-esteem, healthy behaviour, commitment, an individual’s culture, traditions, view of life and social support (Lindström & Eriksson, 2006). Antonovsky highlights social support as being a crucial coping resource (Antonovsky, 1979). It is thought that people with close connections to others who perceive them as supportive manage stress better than people with a lack of perceived social support (Langeland *et al.*, 2007). If these GRR resources are available to a person they enable them to be equipped to tackle stressors and to develop life experiences that are comprehensible, manageable and meaningful thus promoting a strong SOC (Antonovsky, 1987; Lindström & Eriksson, 2006). Therefore, SOC is an individual’s capacity to understand, find meaning in life stressors and to use the resources available (GRR’s) to move in a health promoting direction.

SOC has been found to be a useful concept when applied clinically in a number of different areas such as in medicine, nursing, health psychology and when addressing psychopathology (Griffiths, 2009). For instance, the usefulness of practically applying SOC and the salutogenic theory within mental health rehabilitation services

has begun to be considered as it is seen to fit well with the current mental health recovery model (Griffiths, 2009) For instance, both perspectives are concerned with empowering individual's to build meaningful lives, improving their quality of life and social inclusion, enhancing their independence and setting future goals. From the salutogenic perspective an individual's SOC strength would be seen as important in facilitating recovery and would be an aim within rehabilitation. Bengtsson-Tops and Hansson (2001) found that SOC was positively correlated to changes in overall quality of life, general health, well-being and psychosocial functioning and negatively associated with psychopathology in their 18 month study of 120 patients diagnosed with schizophrenia. They concluded that a salutogenic treatment approach would be beneficial to recovery and recommended ways to strengthen SOC tapping into all three components. They suggested improving patient's cognitive abilities to enhance comprehensibility, enabling individuals to view life as more predictable, comprehensive and consistent (Bengtsson-Tops & Hansson, 2001). In addition, they state that conducting an effective care and needs assessment can help to provide holistic care and support that is matched to an individuals needs thus enhancing their sense of manageability. The meaningfulness component of SOC, they suggest, can be enhanced by offering activities with the correct level of challenge and by providing a range of social activities. Moreover, encouraging and empowering patients to make decisions regarding their care and future lives is also seen as an important way to enhance their SOC (Nilsson *et al.*, 2000; Wolff & Ratner, 1999). Therefore, SOC theory encapsulates pre-existing rehabilitation goals however it provides a more comprehensive theoretical framework for staff. For instance, it highlights the importance of improving general resistance resources to strengthen SOC leading to more effective coping and positive physical and mental health, facilitating recovery.

A salutogenic approach has also been applied within drug addiction recovery following findings that substance misuse decreases when individual's SOC is strengthened (Feigin & Sapir, 2005). The authors of this research recommend enhancing individuals' internal and external general resistance resources to strengthen SOC which in turn leads to more effective coping and facilitates recovery

(Feigin & Sapir, 2005). In addition, a salutogenic approach to treating major depression has also been recommended by Carstens and Spangenberg (1997) who found in their study that SOC was negatively associated with depression. They recommend that psychotherapeutic interventions such as life-skills programmes should seek to strengthen SOC with the aim of reducing depression. However, SOC's links with health specifically mental health and coping will be discussed later in this chapter.

1.4.1. SOC, hardiness, self-efficacy, resilience and fortitude

Antonovsky (1996) acknowledges there is some conceptual overlap or similarity with SOC and other constructs in the coping literature such as hardiness (Kobasa, 1979), self-efficacy (Bandura, 1977), resilience (Rutter, 1985) and fortitude/strength, fortigenesis (Strümpfer, 1995). However, he highlights the difference in the applicability and generalisability of the SOC compared to these constructs. For instance, the SOC construct is not culture- or stressor/situation-specific and thus appears to be universally relevant or applicable (Antonovsky, 1993; Eriksson & Lindström, 2005). Almedom (2005) states that SOC has been supported by robust cross-cultural research as it has been a focus of interest internationally. Moreover, unlike the other constructs, SOC does not refer to a specific type of coping strategy based upon a specific type of coping process, i.e. result of cognitive appraisal. Instead it is all-encompassing in its explanation as it combines the cognitive, behavioural, emotional and motivational aspects of coping (Antonovsky, 1993, 1996).

1.4.2. Stability of SOC

SOC is thought to follow a developmental trajectory throughout childhood, adolescence and young adulthood in accordance with increasing life experience (Antonovsky, 1987). The period of early adolescence often brings change and

confusion for the individual as they begin to develop their position in society and a sense of self (Antonovsky & Sagy, 1986). Later adolescence is characterised by increased independence and psychological stability, with further strengthening of SOC. Furthermore, the continued development of SOC in adolescence is thought to be influenced by parent-adolescent relationships and stability of the community they live in (Antonovsky & Sagy, 1986).

Antonovsky (1987) proposed that SOC becomes a relatively stable trait after the age of 30. It is believed that by this age we consolidate our early life experiences, with SOC becoming stabilised as a result of entering into long-term commitments such as work, relationships and living independently (Antonovsky, 1987; Feldt *et al.*, 2007). Thus we are thought to have gained consistent, sufficient experience of managing stressors and will have formed a stable view of life (Lindström & Eriksson, 2006; Volanen *et al.*, 2007). This established level of SOC is proposed to then remain relatively stable throughout our adult lives (Antonovsky, 1987; Volanen *et al.*, 2007). This is important to consider as research has highlighted SOC as a health promoting variable; high SOC being associated with positive health outcomes and low SOC with negative outcomes (Feldt, Kinnunen *et al.*, 2000; Geyer, 1997; Kivimäki *et al.*, 2000). Therefore, the level of SOC at the age of 30 is suggested to predict our position on the health-ease/dis-ease continuum for our remaining years (Antonovsky, 1987). Antonovsky believed that after the age of 30 a person's SOC may change by up to 10% in response to a specific cause, returning to a stable level once this influence has diminished. This would suggest that someone's SOC can be influenced, but not to a great extent.

Despite the large research base exploring SOC the majority of studies conducted have employed cross-sectional designs resulting in limited empirical evidence existing regarding stability (Geyer, 1997). The studies that will be discussed next have been chosen for their longitudinal design, long retest intervals (up to five years) and because they represent a debate regarding the stability of SOC.

In particular, SOC will be examined in relation to age and socio-economic status as research has shown that these factors (Antonovsky, 1987 a, b; Feldt *et al.*, 2000; Fok *et al.*, 2005; Volanen *et al.*, 2007) may influence the stability of SOC. Negative life events have also been reported to influence stability of SOC (Antonovsky, 1987; Schnyder *et al.*, 2000; Volanen *et al.*, 2007) however, the current study did not specifically investigate this within the self-help population. Nevertheless, they are worthy of consideration as clients attending a psychology self-help service may be seeking help in response to having experienced a negative life event.

Before exploring the impact of these specific factors on SOC the general stability of SOC must first be acknowledged. Conflicting empirical research findings have been reported with regards to the stability of SOC with some studies supporting its stability after the age of 30 years (Chamberlain & Zika, 1990; Feldt, Leskinen *et al.*, 2000; Frenz *et al.*, 1993; Kivimäki *et al.*, 2000) whilst others question it (Breslin *et al.*, 2006; Hakanen *et al.*, 2007; see age section: Richardson *et al.*, 2007; see socio-economic status section: Smith *et al.*, 2003). The studies relating to socio-economic status, age and adverse life events will be discussed here in further detail.

1.4.2.1. SOC and adverse life events

This section will discuss SOC stability related to adverse life events specifically trauma and chronic ill health. Schnyder and colleagues (2000) investigated the stability of SOC and its relationship with anxiety, depression and chronic ill health. They used data from two longitudinal studies; severely injured accident victims and patients suffering from rheumatoid arthritis. They found that SOC remained stable over time for the rheumatoid arthritis sample. However, for the accident victims (Schnyder *et al.*, 2000) level of SOC significantly decreased within the first six months after the accident and stabilised in the second six months. In addition, level of SOC was negatively correlated with measures of anxiety and depression

experienced within the first six months following the accident. The authors suggest that SOC level may have temporarily decreased as a result of the accident (even after depression and anxiety symptoms had reduced) as the event had affected their sense of predictability, manageability and meaningfulness could be negatively influenced. Furthermore, the authors believe that SOC should be a focus of therapy to enable people to rebuild their resilience to cope effectively with future challenges. However, it should be highlighted that pre-traumatic SOC levels were not known, making it difficult to draw firm conclusions from the data about the pattern of change in SOC.

Moreover, in another follow-up study investigating SOC and the effect of trauma, SOC was found to be unstable over time, one to three years after experiencing multiple traumas (Snekkevik *et al.*, 2003). However, as with the Schnyder *et al.* (2000) study, the participants' pre-trauma levels of SOC were unknown. This limits our interpretations as to how multiple traumas may have affected someone's initial level of SOC. It is also difficult to generalise findings from this study as a result of the small sample size. In a more recent study exploring the stability of SOC and negative life events, SOC was found to be unstable, decreasing in response (Volanen *et al.*, 2007). Moreover, levels of SOC were lower for people who had recently experienced the negative event. With respect to initial levels of SOC it was found that a strong SOC, prior to the negative event did not protect against SOC level declining. In addition, no differences in stability existed amongst individuals who had initially strong, medium or low levels of SOC. This is contrary to Antonovsky's theory as he proposed that a person with a strong level of SOC would be less affected by difficult or negative life events than someone with a weak or medium SOC. The authors highlight that SOC levels may be affected as the result of an overlap between SOC and negative affectivity (Volanen *et al.*, 2007).

1.4.2.2. SOC, Employment and SES

Before discussing socio-economic status it is important to consider the impact of unemployment on SOC as employment status can be a contributing factor to an individual's economic position. Antonovsky (1987) believed that unemployment was one of the most significant negative life events that can adversely influence an individual's SOC, due to the loss of predictability regarding the future and social and group identity. However, the extent of change in level of SOC is suggested to be greater for low-SOC individuals compared with high-SOC individuals, where high SOC individuals are postulated to only experience temporary changes, returning to their average level of SOC quickly. However, Antonovsky's predictions regarding SOC stability and the influence of unemployment were not based on empirical studies investigating this (Feldt, Leskinen *et al.*, 2000). A cross-sectional study exploring this relationship by Hanse and Engström (1999) found that SOC was significantly stronger in individuals who had been re-employed compared to those who remained unemployed. They also found that among the unemployed individuals SOC had a greater relationship with psychological symptoms compared with individuals who had been re-employed. The SOC of individuals who were re-employed may have increased as a result of life becoming more meaningful, predictable and manageable, promoting positive mental health.

Feldt and colleagues (2005) investigated the stability of SOC in relation to different employment experiences of Finnish employees in a five year longitudinal study. They found that unemployment experiences were related to lower levels of SOC as proposed by Antonovsky (1987). Findings demonstrated that individuals who had experienced unemployment during the study had lower levels of SOC at both time points compared to individuals who remained in continuous employment. However, the Feldt *et al.* (2005) study had several limitations. For instance, due to the statistical analysis chosen the authors could not comment on whether level of SOC predicted ability to maintain employment or whether unemployment predicted level of SOC. Future investigation of causality is therefore, recommended.

As SOC appears to be influenced by employment status and repeated life experiences that are comprehensible, manageable and meaningful, it is not surprising that it has been found to be related to socio-economic status (Ing & Reutter, 2003). Lack of financial resources may produce a living environment characterised by lack of predictability, manageability and meaningfulness, thereby limiting the conditions necessary for the development of a strong SOC. However, only a few studies have directly investigated the relationship between SOC and socio-economic status (SES). Of the limited number of studies conducted, a positive relationship was found between SOC and SES (e.g. Coward, 1996; George, 1993; Hood *et al.*, 1996). One empirical study by Smith *et al.* (2003) investigated the stability of SOC and the impact of SES and working conditions. They employed a longitudinal design with a four year follow-up period in a Canadian sample. It was found that SOC was not stable over the four year period, with 58% of the sample displaying more than 10% change in SOC score (Smith *et al.*, 2003). This contradicts Antonovsky's theory that SOC in adulthood may fluctuate by no more than 10%. Moreover, they found that position in the occupational hierarchy (unskilled occupations) and household income (for females only) was related to decreases in SOC. However, they did not find working characteristics such as job insecurity and decision latitude to be related to change in SOC. This conflicts with Feldt, Kinnunen *et al.* (2000) study which found that employees who reported less job security and poorer working conditions had lower SOC and well-being scores. Therefore, they propose that changes in SOC may be related to factors outwith the working environment predicted by occupational position. However, Smith *et al.* (2003) acknowledge that an effect may not have been found as they did not measure these variables again at follow-up and because the sample had reported high levels of job security at baseline.

1.4.2.3. SOC and age

Studies have been conducted examining Antonovsky's theory that SOC is still developing until age 30 when it becomes stabilised. The studies discussed here are longitudinal (although there are also cross-sectional studies, these are limited in interpretation). In a five-year follow-up study (Feldt *et al.*, 2003) the stability of SOC was explored comparing two age groups 25-29 year olds (youngest group) and 35-40 year olds (oldest group). Findings demonstrated that SOC was no more stable in the older age group than in the younger group, therefore not supporting Antonovsky's theory. However as highlighted by the authors it may be helpful to test this in a younger sample as the youngest participants were 25 years old, not significantly younger than the proposed age of stabilisation of SOC. In addition, Antonovsky believed that SOC stabilised at 30 years of age due to people entering into long-term commitments and experiencing consistent life experiences. This may have already occurred for the 25 year olds in the sample resulting in a stable level of SOC. Therefore, it is perhaps not age per se that affects stability, but its correlates in terms of life experiences.

A more recent longitudinal study (over 4 years) investigating the measurement invariance and stability of SOC across a wider age range was conducted by Richardson *et al.* (2007). Participants fell into one of three age groups, 19-25 years, 30-55 years and 60 years plus. Moderate support was provided for the stability of SOC across time points, within and across age groups. In addition, the greatest variation in SOC scores was found in the youngest age group (19-25 years) in support of Antonovsky's theory. A longitudinal study (over 5-year period) by Feldt *et al.* (2007) further supported these findings. They found support for the stability of SOC. However, SOC was less stable in the under 30 group (demonstrating the highest increase in SOC scores at follow-up) compared to the 30 years and over age group. Smith *et al.* (2003) and Volanen *et al.* (2007) found that SOC was more stable

in the oldest age group in their studies. Furthermore, in a recent systematic review of the recent SOC evidence base, including studies published between 1992 and 2000, Lindström and Eriksson (2005) concluded that SOC was found to increase with age.

1.4.2.4. Conclusion

From the empirical evidence available regarding the stability of SOC it appears that the construct is more dynamic than initially proposed by Antonovsky (Volanen *et al.*, 2007). Studies have shown that SOC can be influenced in adulthood with variations in SOC found to exceed 10%. This contradicts Antonovsky's postulation that SOC may fluctuate but would not exceed 10% change. Moreover, SOC appears to be sensitive to change in response to negative life events, employment experiences, working conditions and physical health conditions. If SOC can be influenced in a negative way after the age of 30 it suggests it may also be influenced positively. In light of the negative correlation of SOC with psychological difficulties such as anxiety and depression and physical health conditions, interventions to enhance SOC may prove helpful in improving the physical and mental health of individuals. Moreover, as several studies found SOC appeared to be less stable in under 30 year olds (in line with Antonovsky's theory) therefore, this age group may be more responsive to influences.

1.4.3. Assessing SOC

Antonovsky (1987) developed the Orientation to Life Questionnaire to measure SOC. It has been used in many studies cross-culturally, with reports of its use in 32 different countries, 33 different languages with at least 15 different versions of the scale (Eriksson & Lindström, 2005). It was originally developed as a 29-item scale based upon interviews from individuals who had experienced severe trauma and were (against the odds) functioning well (Breslin *et al.*, 2006; Feldt *et al.*, 2000). Individuals were classified as having strong or weak SOC and their words or phrases from the interviews were used to develop the scale (Antonovsky, 1993). Each item of

the scale reflects one of the three components of SOC (comprehensibility, manageability and meaningfulness). The SOC scales exists in abbreviated versions with a 13-item scale found to demonstrate good reliability and to be psychometrically similar to the original 29-item (Feldt *et al.*, 2007). Both versions of the scale, from the focus of many studies, are reported to be reliable and valid instruments (Eriksson & Lindström, 2005). The 13-item scale appears to be more applicable to clinical settings where time constraints exist (Breslin *et al.*, 2006).

1.5. SOC and Mental Health

High or strong SOC has been linked with successful coping and positive physical and mental health outcomes (Antonovsky, 1979, 1987, 1991; Hawley *et al.*, 1992; Langius & Björvell, 1996; Larsson & Kallenberg, 1996). Therefore, it is important to consider SOC's associations with mental health and coping further to explore SOC's potential clinical application in predicting outcome of clients attending a self-help service.

The World Health Organisation (2005) recognises the importance of the SOC concept in mental health promotion due to its link with positive mental health. Eriksson and Lindström (2006) in their recent systematic review of the SOC evidence base (1993-2000) found specific positive associations between SOC and mastery, optimism, self-esteem, good perceived health, quality of life and well-being. Strong negative relationships between SOC and anxiety, demoralisation, depression, burnout and hopelessness were also reported in the literature (Eriksson & Lindström, 2006). The review suggested that the SOC concept should be implemented into clinical practice to promote positive mental health. In particular a strong negative relationship between SOC and anxiety has been reported consistently in the literature (e.g. Antonovsky & Sagy, 1986; Bernstein & Carmel, 1987; Frenz *et al.*, 1993; Hart *et al.*, 1991; Schnyder *et al.*, 2000) with some suggesting they are part of the same continuum (Antonovsky & Sagy, 1986). SOC has also been found to be related to other psychological symptomology (Flannery & Flannery, 1990). For instance,

negative relationships with SOC and symptoms of self-rated depression have been reported (Eriksson *et al.*, 2007; Lehtinen *et al.*, 2005; Suominen *et al.*, 2001).

Carstens and Spangenberg (1997) found that total SOC and the three subscale scores were negatively associated with depression scores in a sample comprised of patients with a diagnosis of major depressive disorder and controls. A low meaningfulness subscale score on the SOC was found to be the best predictor of depression. The authors suggested that psychotherapeutic interventions should seek to enhance individual's sense of coherence with the aim of reducing symptoms of depression. This appears to be one of very few studies to have explored the relationship between SOC and major depressive disorder as other studies have focused on self-rated depression (Skärsäter *et al.*, 2005). The findings are limited however as the study was cross-sectional in design and inter-rater reliability regarding diagnosis was not assessed. A prospective longitudinal study explored SOC and social support of patients being treated for a first episode of major depression (Skärsäter *et al.*, 2005). Along with Carstens and Spangenberg (1997) the authors found that the initial total sample mean SOC score of depressed patients was very low compared with healthy controls. The SOC scores of patients who had demonstrated improvement at the one year follow-up had significantly increased along with social support levels. However, they highlight that uncertainty remains as to whether the change in SOC scores is temporary, in response to the intervention, and may return to the original level. They suggest that further research should be conducted to ascertain if psychological interventions can aid enhancement of SOC to obtain improved health. Although this study provided more robust results due its longitudinal design findings may be difficult to generalise due to the very small sample size.

In a recent prospective study a strong SOC was also found to be protective against psychiatric disorders (40% lower risk) over a 19-year period (Kuovonen *et al.*, 2010). This included reduced risk of hospital admission for a psychiatric disorder, suicide attempt or death by suicide. In addition, a recent population based study of

adolescent boys (Ristkari *et al.*, 2006) found low SOC scores predicted depression, anxiety, substance use and antisocial personality disorders. Moreover, the authors suggest that their findings have significant clinical implications as SOC appears to be an important risk factor for the development of a number of psychiatric disorders. They further propose that within clinical practice instead of adopting a narrow focus measuring only symptoms, SOC could be assessed to determine the level of a patient's improvement.

Due to the link between SOC and mental health, other studies have also considered the clinical implications of employing a salutogenic approach within clinical practice and they will be discussed here. Fok and colleagues (2005) found patients SOC, coping ability and health-related quality of life to be positively correlated following a critical illness. The results showed that the higher the patients' SOC the greater their physical and psychological health and coping ability. Based on their findings they propose that interventions to strengthen someone's SOC should be conducted to promote better health outcome and QOL of patients' following a critical illness. They suggest that nursing interventions should aim to do this by increasing or improving a person's internal resources (giving some control, hope, and promoting self-reliance and independence) and their external resources (providing accessible health care information, linking them with support networks, and promoting open communication with medical professionals; Beckingham & Watt, 1995).

However, very few studies have explored the relationship between SOC and therapeutic outcome in clinical practice. One study by Petrie and Azariah (1990) investigated whether clients' SOC, self-esteem and the mental health subscales inventory were possible predictors of response to a brief pain management programme. They found that only the SOC meaningfulness subscale scores were significantly associated with the pain intensity at six month follow-up. They suggest that clients who see life and its challenges as meaningful respond well to intervention reporting less pain after participating in a brief pain management programme. They

also found that regular use of relaxation techniques was related to greater positive affect and well-being. The authors highlight that their research is limited by the use of self-report measures and short follow up-period. However, despite this, they propose that focusing on SOC may be a useful and quick way of identifying people who are likely to respond well or benefit from psychological interventions such as pain management programmes.

Further evidence exists to highlight the importance of SOC on other therapeutic factors including therapist well-being (Linley & Joseph 2007). They concluded from their study that higher sense of coherence was found to be a good protective factor for therapists against burnout, negative psychological effects and compassion fatigue. They suggest that it may be helpful to screen therapists for low sense of coherence as this is a potential risk factor for experiencing negative psychological changes associated with therapy work.

SOC appears therefore to have significant effects on client and therapist outcome however to date no research has been conducted exploring SOC and therapeutic outcome in clients in a self-help service. This thesis aims to explore this potential relationship and provide more information regarding SOC's clinical applicability. In addition, SOC's relationship with coping will also be explored, as strong SOC has been found to be associated with successful/effective coping. Therefore, SOC may have a direct as well as an indirect effect, due to influencing coping style, upon mental health. The next section will therefore, discuss coping from a traditional and salutogenic perspective and explore research conducted investigating SOC and coping.

1.6. Coping

Antonovsky (1987) stated “The central thesis of the salutogenic model is that a strong SOC is crucial to successful coping with the ubiquitous stressors of living and hence to health maintenance” (p.164). A number of studies have indeed found a strong SOC to be related to lower levels of stress, anxiety, depression, increased optimism in AIDS patients, increased self-care in cystic fibrosis patients and better quality of life in families dealing with illness (Anderson, 1994; Antonovsky & Sagy, 1986; Flannery & Flannery, 1990; Linn *et al.*, 1993). Therefore, it is important to consider the reported relationship between SOC and coping when considering health as an outcome. Before exploring Antonovsky’s theoretical understanding of how SOC relates to coping it is important to place it into context by first considering a traditional model of coping by Lazarus & Folkman (1984).

1.6.1. Transactional model

Lazarus and Folkman (1984) developed the widely accepted transactional model of coping to explain the process by which people manage stress. They define coping as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). Lazarus and Folkman (1984) identified cognitive appraisal as being a key process in relation to coping. The appraisal process is subdivided into primary and secondary appraisal. Primary appraisal relates to the individual’s first impressions of the event, whether they perceive it is as threatening or not (Carver *et al.*, 1989). Secondary appraisal involves more in-depth cognitive analysis when an event has been appraised as a stressor. This process is believed to involve consideration of the possible effects of the stressor and the evaluation of potential coping strategies to deal with it (Amirkhan & Greaves, 2003). The next process is coping, when the response is put into action (Carver *et al.*, 1989). In this model coping is not considered stable across situations but is thought of as a dynamic

process, a set of strategies that the individual employs to match the situation (Lazarus & Folkman, 1984). Moreover, reappraisal takes place due to the person-environment relationship not remaining static and always in a state of change with coping strategies changing accordingly (Carver *et al.*, 1989).

The cognitive appraisal process is therefore thought to play an important role in the individual's selection of appropriate coping strategies. Coping strategies within this model have been defined as specific efforts, both behavioural and psychological, that individuals employ to master, tolerate, reduce and minimise stressful events (Folkman & Lazarus, 1984). They are believed to fall into one of two general categories: problem-focused or emotion-focused. Problem-focused coping refers to active efforts directed at altering or solving the problem. This includes employing strategies such as gathering information, learning new skills, planning and decision making (Lazarus & Folkman, 1984). Emotion-focused coping is concerned with the emotions aroused by the stressor and with minimising this distress. Strategies include avoidance, wishful thinking, emotional expression and minimisation (Lazarus & Folkman, 1984). There is a further distinction made between engagement and disengagement in the coping literature. Engagement coping refers to active efforts to deal with the situation or resulting emotions (moving towards the stressor) and disengagement coping relates to creating distance from the problem and associated emotions (moving away from the stressor) (Connor-Smith & Flachsbart, 2007). It appears that there are a number of different forms of coping strategies identified in the literature. It is therefore important to examine whether SOC contributes to these concepts.

1.6.2. SOC as inner coping resource

In relation to stress theory both material (i.e. money) and inner resources are proposed to influence the way people deal with stressors and the resulting level of emotional distress (Cohen & Dekel, 2000). Inner resources have been reported as taking two forms, psychological resources and coping strategies (Cohen & Dekel,

2000). Psychological resources have been defined as personality characteristics that people utilise to help them manage stressors occurring in their environment (Pearlin & Schooler, 1978).

Sense of coherence has been considered as an inner resource that explains the variations in the way people manage stress (Antonovsky, 1987, 1995). Antonovsky (1979, 1987) proposed that a person's SOC determines whether the outcome of a stressor event will be neutral, beneficial or detrimental to their well-being. He describes an appraisal process, which is in fitting with Lazarus and Folkman's (1984) transactional model of coping.

1.6.3. Salutogenic model of coping

Antonovsky (1987) built upon the transactional model and identified three appraisal processes; primary, secondary and tertiary appraisal. He further subdivided primary appraisal into three further processes. Primary appraisal I concerns the initial perceptions of the event, when it is identified as a stressor or non-stressor. He postulated that individuals with a strong SOC are more likely to appraise the event as a non-stressor, than those with a weak SOC. Primary appraisal II occurs when the event has been defined as a stressor and further judgement is made as to whether it is perceived to be threatening, benign or positive. Strong SOC individuals, due to having prior experience of identifying stressors and finding they are non-problematic, will be more likely to define it as irrelevant or benign at this point. Moreover, they will have confidence that the tension will soon ease, based on prior positive experience of dealing with stressors.

Primary appraisal III refers to the emotions aroused by the stressor and the extent to which the individual is able to emotionally and cognitively deal with it. Antonovsky argued that strong SOC individuals are more likely to understand and find meaning

in the situation thus providing the motivation for successfully managing the event. Secondary appraisal follows whereby the individual selects the most appropriate strategy to manage the stressor in question. Individuals with a strong SOC will have many strategies within their repertoire and will be able to employ them flexibly adapting to the stressor event (it should be highlighted here that SOC is not a specific coping strategy). Lastly Antonovsky describes tertiary appraisal as a process of re-assessing the planned course of action and chosen resources when receiving negative feedback regarding its success. Strong SOC individuals are thought to be more adept at using feedback and changing course if necessary than weak SOC individuals.

1.6.4. SOC and coping strategies

Therefore, Antonovsky's model as well as being consistent with the coping literature also adds to it by explaining how sense of coherence affects the appraisal process influencing coping. However, Antonovsky does not specifically distinguish between the type of coping that can be expected from people with strong and weak SOC (Cohen & Dekel, 2000). Despite this he implies within his writing that there is a differential selection of coping strategies amongst strong and weak SOC individuals (Amirkhan & Greaves, 2003). He stated, "The stronger a person's sense of coherence, the more that person will tend to clarify the nature of the particular stressor confronted, select the resources believed to be appropriate in the specific situation, and be open to feedback that allows modification of behaviour" (1992, p.37). This indicates strong SOC individuals will be more likely to actively focus on managing the stressor thus employing problem-focused strategies, whereas people with weak SOC will tend to utilise more avoidant and emotion-focused strategies (Cohen & Dekel, 2000).

In addition, problem-focused coping strategies have been considered more effective as they have been linked with positive physical and mental health outcomes (Amirkhan, 1998; Cohen & Dekel, 2000; Compas *et al.*, 2001; Folkman & Lazarus,

1985). In contrast, emotion-focused or avoidant coping strategies have been linked with poorer health outcomes (Amirkhan, 1998; Billings & Moos, 1984; Compas *et al.*, 2001; Pakenham, 2002). The prediction that high SOC will be associated with greater use of problem-focused coping strategies was supported in a recent cross-sectional study which explored SOC and coping strategies of therapists working within an adult psychology service, (Kayal, 2009). However, no firm conclusions can be drawn regarding the coping strategies employed by people with strong and weak SOC due to limited research in this area (Amirkhan & Greaves, 2003). The next section will further examine the existing literature about SOC, coping and health.

1.6.5. SOC, coping and health

A recent systematic review of studies published between 1992-2003 exploring SOC and its relation to health was conducted by Eriksson and Lindström (2006). Cross-sectional and longitudinal studies were included in the analysis. The review found that SOC was strongly positively associated with health, especially mental health. This relationship held true across populations, demographic variables and study designs. The authors concluded that SOC promotes health, enhancing resiliency. They state that it is an important factor in the development and maintenance of health but it does not alone account for total health (Eriksson and Lindström, 2006).

One study exploring SOC's possible relationships with well-being and ways of coping in divorced and married mothers was conducted by Cohen & Dekel (2000). The well-being of the married mothers was higher. However, sense of coherence was found to predict the well-being of both sample groups more than other variables such as family-structure. The link with greater well-being and better economic status was explained by the documented association between higher SOC and greater economic status (Drori *et al.*, 1991). They also found SOC was related to ways of coping in both groups. Mothers with higher sense of coherence employed less avoidant coping, participated more in social activity and sought more informal support (Cohen &

Dekel, 2000). The authors concluded that higher sense of coherence was associated with the use of more effective ways of coping, problem-focused, reinforced by the negative relationship found between avoidant coping and well-being. Similarly, a cross sectional community based study by Pallant and Lae (2002) found SOC was linked with physical and psychological well-being and the use of adaptive (problem-focused) coping strategies. The authors also found that SOC (as measured by the SOC-13; Antonovsky, 1987) predicted well-being more than the comparison measures of self-esteem, optimism and perceived control. They suggest that although SOC itself was correlated with these personality measures this finding indicates they are not measuring the same construct (i.e. SOC, self-esteem, optimism and perceived control are different constructs).

A limited number of studies have explored the relationship between SOC and coping style used in response to a stressful situation (Cochrane & Slade, 1999; Gallagher *et al.*, 1994; Margalit & Eysenck, 1990; McSherry & Holm, 1994). However, many of these studies have explored this relationship with specific sample groups (e.g. caregivers: Gallagher *et al.*, 1994; adults with cleft palate: Cochrane & Slade, 1999) and have examined participants responses to controlled artificial stressful situations. This makes findings difficult to generalise to wider community based populations and therefore highlights the need for further research to be conducted exploring SOC and coping in naturalistic settings.

However, a study by McSherry and Holm (1994) investigated the possible effects of SOC on psychological and physiological responses to a controlled stressful situation (being asked to spontaneously present a speech). Sixty undergraduates were assessed before and after the speech using a variety of psychological and physiological measures. Subjects with low SOC scored significantly higher on measures assessing stress, anger and anxiety than middle and high SOC subjects. Individuals with a low SOC score were also significantly less likely to believe they had the appropriate coping resources to deal with the situation than high SOC scoring individuals.

Moreover, low SOC subjects used significantly fewer problem-focused coping strategies than middle or high SOC subjects. The authors conclude that their findings provide support to using SOC to measure resilience to stress.

There appears to be a lack of studies conducted exploring the relationship between SOC and coping in wider community samples (Pallant & Lae, 2002). However, Amirkhan and Greaves (2003) explored relationships between SOC and coping in a series of studies one of which was a longitudinal community based study. They conducted a total of 4 studies exploring the mechanisms underlying the proposed relationship between SOC, health and coping. They found evidence supporting perceptual and behavioural mechanisms with people with stronger SOC being more likely to rate life events as coherent and to employ active adaptive coping strategies. A negative relationship between SOC and avoidant coping was reported. In their fourth longitudinal study of unemployment, coping was found to mediate an indirect relationship between SOC and illness, where problem-focused coping was reported as being protective against depression and stress-related illnesses. A direct influence between SOC and health was observed possibly as the result of people with higher SOC perceiving life events as more benign and employing more problem-focused strategies (Amirkhan & Greaves, 2003). However, the results are limited as the study focused on one particular stressor, unemployment. Therefore, further replication of the study is required to determine if the results are applicable to other stressors, populations and cultures. This would be important research because if SOC could be influenced this could positively impact on health, via the selection of more effective coping. This thesis aims to provide more evidence to these questions in particular investigating SOC's relationship with therapeutic outcome, mental health and coping.

1.7. Rationale for the current study

Previous research has shown that SOC is related to positive mental health outcomes and more effective coping (particularly problem-focused coping strategies). There is also evidence (although limited) suggesting that level of SOC may be linked and could predict therapeutic outcome, with clients with higher SOC responding and benefiting more from psychological intervention in pain management. However, there remains uncertainty as to whether SOC can predict therapeutic outcome in an adult mental health setting.

Therefore, the current study aims to test whether clients' SOC at the start of a self-help intervention can predict therapeutic outcome. The findings would help determine whether SOC could be used as a screening measure to indicate which individuals would benefit from psychological intervention such as self-help. Findings may also indicate when self-help would not be appropriate (possibly for individuals with lower SOC) and referral to another service may be indicated (i.e. adult mental health service for more intensive treatment). This would prove to be a potentially useful measure in the current clinical climate with government pressure (HEAT targets discussed previously) to increase access to psychological services and to ensure effectiveness of treatments.

1.8. Aims and Hypotheses

The main study aim is to determine whether sense of coherence predicts therapeutic outcome following a brief CBT guided self-help intervention. The study also aims to explore the possibility that coping style mediates this relationship.

Research Questions:

What is the relationship between SOC and therapeutic outcome?

Does SOC predict outcome, and does coping style mediate this relationship?

Primary Hypotheses:

1. Sense of coherence scores will be negatively associated with pre anxiety scores.
2. Sense of coherence will be negatively associated with post intervention anxiety and depression scores.
3. Sense of coherence will be positively associated with outcome as measured by change in anxiety and depression and patient rated improvement scores after treatment.
4. As sense of coherence scores will predict therapeutic outcome, this relationship will be mediated by problem-focused and emotion-focused coping style.

Secondary Aims:

The secondary objectives of the study are to explore the possible relationships between socio-economic status, age and participants' sense of coherence.

These factors are being investigated as they have been previously shown to have a relationship with SOC (outlined above).

Secondary Hypotheses:

5. Sense of coherence scores will be positively associated with socio- economic status.
6. Sense of coherence scores will be positively associated with age.

CHAPTER 2: METHODOLOGY

2.1. Setting

The study was carried out in NHS Dumfries and Galloway's guided self-help service, for people experiencing mild to moderate psychological difficulties. The most common difficulties for referral to the service are depression and anxiety. A traditional bibliotherapy self-help approach is utilised. However, self-help workers are employed to help clients work through the self-help material and apply the principles learnt. This approach is referred to as guided self-help due to patients having contact, although minimal with a paraprofessional (Mead *et al.*, 2005). This addresses one of the criticisms of traditional bibliotherapy self-help (Williams, 2001) as the client's understanding and reading abilities are monitored by the self-help workers. The model utilised in Dumfries and Galloway offers a maximum of three sessions. Some clients may require all of the sessions whilst others may only attend one or two. The therapeutic model underlying the self-help approach is Cognitive Behavioural Therapy (CBT) with all self-help workers trained in the basic skills of CBT. CBT, is recognised as the most effective treatment for anxiety and depression (National Institute for Clinical Excellence, 2004a, b). The Scottish Executive funded the set up of the service with the aim of reducing the prescribing of anti-depressant medication for mild to moderate psychological problems. This was in light of increases in expenditure due to increases in prescribing of these drugs and given the lack of evidence for their effectiveness with mild to moderate depression.

2.2. Design

This study employed a longitudinal survey design to explore the relationship between SOC and therapeutic outcome. Participant data was collected (using questionnaires) at two different time intervals: pre and post intervention.

2.3. Participants

Inclusion criteria:

- Clients referred to Dumfries and Galloway's psychological guided self-help service.
- Clients aged 30-64 years experiencing mild to moderate psychological difficulties awaiting their first appointment. According to Antonovsky (1987) a person's SOC is expected to be stabilised around the age of early adulthood, approximately 30 years old. Therefore, SOC scores in those under 30 years may not be reliable.

Exclusion criteria:

- Clients reporting suicidal ideation or intent.
- Clients with severe mental health problems, including schizophrenia, bipolar disorder, eating disorders, severe PTSD, severe depression and or anxiety requiring more long-term intensive treatment.
- Clients with substance misuse problems.
- Clients engaging in self-harm behaviour.

Following standard self-help service procedure these clients were referred on to the appropriate service or agency.

The sample consisted of 86 participants (80.2 per cent females, 19.8 per cent males), aged 30-61 years ($M = 44.08$, $SD = 8.54$). As depicted in Figure 2.1 a total of 120 potential participants were invited to take part in the study. Of these, 86 completed pre measures (return rate of 71.6 per cent). Of the remainder, 13 declined to participate, four did not attend and 17 did not return the pre measures. Out of the 86 participants who had completed pre measures 51 also completed post questionnaires (return rate of 59.3 per cent). Of those who did not return the post measures, 11 did not attend a further scheduled appointment, four did not require the maximum three sessions, two were referred back to their GP and 18 opted out.

2.4. Procedure

Potential participants meeting the inclusion criteria were identified from the service's referral list by the self-help manager. Following normal service procedure they were allocated by the self-help manager to individual self-help workers working within the participants' home area. Referrals to the service can be accepted from general practitioners, practice nurses, psychologists, the community mental health team, health visitors and the Child and Adolescent Mental Health Service. This process was conducted for those due to attend the guided self-help service between January 2010 and June 2010, the period of data collection. A diagrammatic version of the study procedure is provided in Figure 2.1.

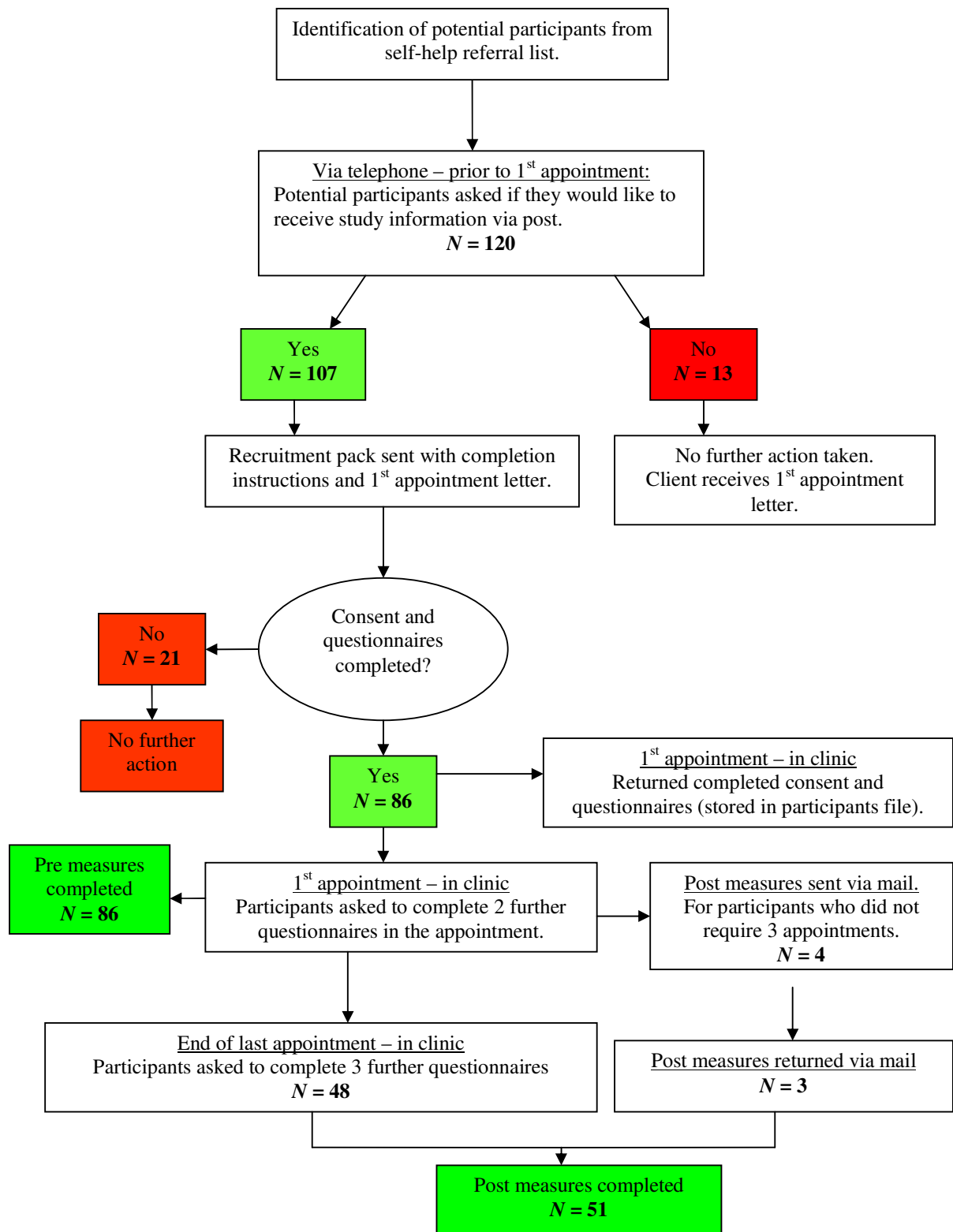


Figure 2.1 Overview of study procedure

2.4.1. Prior to 1st appointment

Potential participants were informed of the study via telephone (by their self-help worker) when their first appointment was being arranged. They were asked if they would like to receive information about the study via post. Recruitment packs were sent out by the individual self-help workers to potential participants who consented to receive further information. This was conducted by the self-help workers to maintain the anonymity of participants from the researcher. The researcher did not have direct access to the participants' personal details as this was not considered to be ethically appropriate. Participants who did not consent to receive further information were still allocated an appointment to be seen and their treatment was not affected.

The recruitment packs were sent out two to five days before the participant's first scheduled appointment. Each recruitment pack contained an invitation letter (Appendix 1), information sheet (Appendix 2), consent form (Appendix 3), and two questionnaires (sense of coherence (SOC) scale; Appendix 4) and the brief coping orientations to problems experienced scale (Brief COPE; Appendix 5). The participant's questionnaires contained an individual code linking the questionnaires together for the purpose of matching the data and to ensure anonymity was maintained. This code was assigned to the individual participants by their own self-help worker. Participants' consent forms were not stored with their corresponding coded questionnaires to ensure anonymity was maintained from the researcher.

The information sheet contained details regarding the study and clear instructions for clients who wished to participate. Participants willing to take part were asked to sign the consent form and to complete the two enclosed questionnaires. They were asked to bring the completed forms to their first appointment in the sealed envelope provided.

2.4.2. 1st appointment – in clinic

At their first appointment consenting participants were given two further short questionnaires Hospital Anxiety and Depression Scale (HADS; Appendix 6) and the Patient Global Impression of Severity Scale (PGI-S; Appendix 7) by their self-help worker to complete in session. They were asked to place these in their envelope with their other completed measures. Their envelope was kept by their self-help worker in their file until the end of the study. After completing the two questionnaires, one of which was a standard outcome measure routinely used by the service, the session continued according to normal practice. If participants verbally reported or indicated on their questionnaires that they were experiencing suicidal ideation or intent, severe mental health problems, substance misuse problems and or was engaging in self-harm behaviour they were referred onto the appropriate service or agency.

This is normal procedure for the self-help service and clients may be referred to psychiatry, the psychology adult mental health department or the community mental health team. If participants had reported experiencing these difficulties during the study their involvement would have ceased to continue and they would have received the appropriate support.

2.4.3. After last appointment

After their last appointment (second or third) study participants received a second envelope from their self-help worker. They were instructed to complete three questionnaires inside: HADS (post), PGI-S and the Patient Global Impression of Improvement Scale (PGI-I; Appendix 8) at the end of the appointment in the waiting room and to place them in the sealed envelope and return to their self-help worker. In addition, the initial data of participants who dropped out of treatment or from the study was retained for a comparison analysis (participants were informed in the information sheet that their initial data would be used). The estimated time taken to complete the questionnaires on the three occasions was a maximum of twenty minutes.

2.5. Power calculation

The methods of analysis were determined and power calculations were conducted to ascertain how many participants were required to reliably detect any effects in the data. To test the relationship between SOC and therapeutic outcome, correlational analysis was used. There were no previous studies that had looked at whether SOC predicts these outcome measures, in order to calculate an effect size. However, on the basis that effect sizes in behavioural research are generally of medium size (Cohen, 1988), the present study estimated a medium effect size, with an r value .3 to .5 (Cohen, 1992). Therefore, to detect a medium effect size with the statistical power of .8 at α level of .05, approximately 90 participants were required (Cohen, 1992).

Mediation analysis, the Baron and Kenny method (1986), was intended to be undertaken to ascertain if any relationship between SOC and therapeutic outcome was mediated by coping. Three equations are conducted using this method and mediation is established if the following conditions occur:

1. The independent variable (SOC) must affect the mediator (coping).
2. The independent variable (SOC) must be shown to affect the dependent variable (post anxiety and depression).
3. The mediator (coping style) must affect the dependent variable (post anxiety and post depression).

Therefore, a total of two predictors were planned to be entered into each equation. Green (1991) recommends a sample size of greater than or equal to $50 + 8m$ (where m is the number of predictors) to detect an effect in behavioural research. Using Green's formula with two predictors ($50 + (8 \times 2) = 66$) to detect a medium effect, 66 participants were required. Therefore, in order to test all hypotheses, the study aimed to recruit 66 participants. However, unfortunately only 51 study participants completed pre and post measures, consequently this led to the study being under powered.

2.6. Measures

2.6.1. Sense of Coherence 13-item Scale (Antonovsky, 1987)

The SOC scale (Appendix 4) also known as ‘The Orientation to Life Questionnaire’ (Antonovsky, 1987) has two forms; a 29 item scale and the shortened 13-item scale. The SOC-13 scale measures the three components of SOC: comprehensibility (five items, e.g. ‘Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?’), manageability (four items, e.g. ‘Has it happened that people whom you counted on disappointed you?’) and meaningfulness (four items, e.g. ‘Do you have the feeling that you don’t really care about what goes on around you?’). The semantic differential scale asks respondents to answer the questions using a seven point Likert scale with two opposing anchoring points, for example, never (= 1) to very often (= 7). Reverse scoring is applied for five of the 13 items (items, 1,2,3,7 and 10) and the values for each item are summed to obtain a total score. The values for the items within the three subscales are summed to produce a total subscale score. Total scores on the measure range from 13-91, where a higher score signifies a stronger SOC. Antonovsky did not provide precise cut off scores or define what scores constitute a normal SOC.

Previous studies support the reliability and validity of both versions of the scale (Antonovsky, 1993; Feldt, 2000; Pallant & Lae, 2002). In a systematic review exploring the validity of the SOC scale the authors found that the Cronbach’s α values ranged from 0.70 to 0.92 (Eriksson & Lindström, 2005) in 127 studies that had employed the 13-item SOC scale and concluded that the SOC scale (in both versions) is a reliable and valid measure for use across cultures, ethnic groups, gender and age. Internal reliability analysis of the SOC scale within the sample was conducted. This was investigated as a result of the unexpected low mean SOC score

(when compared to other studies) to determine if the scale was reliable in this sample. The Cronbach α values were .86 for the total SOC score, .79 for the meaningfulness subscale, .69 for the manageability subscale and .66 for the comprehensibility subscale. Cronbach α values of 0.7-0.8 are reported to denote acceptable levels of reliability (Field, 2005). However, Kline (1999) reports that for psychological constructs, as a result of the diversity of the measured constructs, values falling below 0.7 can be expected. Moreover, with a small number of items it is not unusual to find a low Cronbach's α value (Pallant, 2007). The Cronbach α values for the SOC 13-item scale and the meaningfulness subscale suggest good internal consistency reliability for the scale with this sample. The Cronbach α values for the manageability and comprehensibility subscales are just below 0.7. The use of the mean inter-item correlation value is recommended in this case with optimal range reported to be 0.2 to 0.4 (Briggs & Cheek, 1986). The inter-item correlation values for both the manageability (0.35) and comprehensibility (0.28) fall within the optimal range. Therefore, the three subscales can also be reported to demonstrate internal consistency reliability within the sample.

The test-retest reliability of the measure has been supported by previous research (Feldt *et al.*, 2007; Kivimäki *et al.*, 2000). The Pearson test-retest correlation coefficient for the SOC 13-item version was found to range from 0.65 (Gana & Garnier, 2001) to 0.82 (Kivimäki *et al.*, 2000).

The three subscales of the measure (both versions) have been found to be highly correlated as demonstrated in several studies (Callahan & Pincus, 1995; Feldt & Rasku, 1998; Flannery & Flannery, 1990; Larsson & Kallenberg, 1999). Support has been provided for the three-factor model (e.g. Feldt, Leskinen *et al.*, 2000; Flannery & Flannery, 1990). However, others have found evidence for four (Hawley *et al.*, 1992) and five factor models (Coe *et al.*, 1990; Schumacher *et al.*, 2000). Therefore, although the three components are often employed in research there remains some debate regarding the factorial structure of the scale. Consequently, the total score was used for the main analysis within the study.

2.6.2. Brief Coping Orientations to Problems Experienced Scale (Carver, 1997).

The Brief Coping Orientations to Problems Experienced Scale (Brief COPE; Appendix 5) is a 28 item self-rating questionnaire measuring coping strategies. It comprises 14 coping methods or subscales: acceptance, emotional support, humour, positive reframing, religion, active coping, instrumental support, planning, behavioural disengagement, denial, self-distraction, self-blame, substance use and venting, each consisting of 2 items. It is a shortened version of the original COPE scale (64 items; Carver *et al.*, 1989) and was developed to be more applicable in clinical research due to quicker completion time. Respondents are asked to rate how frequently they used the described strategy when faced with a stressful event. They are asked to provide answers using a 4 point Likert scale (1 = I haven't been doing this at all; 2 = I've been doing this a little bit; 3 = I've been doing this a medium amount; 4 = I've been doing this a lot).

The original authors do not provide an overall coping index score and look at each coping strategy separately, comparing them to one another or other variables. The higher the score for each strategy suggests the greater its use. However, they suggest that if other researchers want to investigate for example, dominant coping styles from within the scale they should create their own models for second-order factoring based on their own research data. This has been conducted with three composite subscales of the Brief COPE emerging measuring emotion-focused, problem-focused (active coping), and dysfunctional (avoidant) coping and applied in clinical research (Coolidge, *et al.*, 2000; Cooper *et al.*, 2006; Cooper *et al.*, 2007; Cooper, *et al.*, 2008a; Cooper, *et al.*, 2008b; Crespo *et al.*, 2005). The three composite subscales to have emerged were first operationalised by Coolidge *et al.* (2000). The original authors also identified dysfunctional, emotion-focused and problem-focused

strategies as being predominant in their scale (Carver *et al.*, 1989). These subscales have proved useful and have demonstrated content validity (Cooper *et al.*, 2008b).

The 14 subscales with corresponding item questions, grouped into the three composite subscales are shown in Figure 2.2 Brief COPE three composite subscales.

| <u>Emotion-focused coping strategies</u> | |
|--|--|
| <u>Subscales</u> | <u>Items</u> |
| Acceptance | (accepting the reality of the fact that it has happened or learning to live with it) |
| Emotional Support | (getting emotional support/comfort and understanding from others) |
| Humour | (making jokes about it/making fun of the situation) |
| Positive Reframing | (trying to see it in a different light or make it seem more positive/look for something good in it). |
| Religion meditating) | (trying to find comfort in my religious or spiritual beliefs/praying or |
| <u>Problem-focused coping strategies</u> | |
| Active coping | (concentrating my efforts on doing something about the situation I'm in/taking action to try to make it better). |
| Instrumental Support | (getting help and advice from other people/trying to get advice or help from from others about what to do). |
| Planning | (trying to come up with a strategy about what to do/thinking hard about what steps to take). |
| <u>Dysfunctional (avoidant) coping strategies</u> | |
| Behavioural Disengagement | (giving up trying to deal with it/the attempt to cope). |
| Denial | (saying to myself 'this isn't real'/refusing to believe that it has happened) |
| Self-distraction | (turning to work or other activities to take my mind off things/doing something to think about it less). |
| Self-blame | (Criticising myself/blaming myself for things that happened). |
| Substance use | (using alcohol or other drugs to make myself feel better/to help me get through it). |
| Venting | (saying things to let my unpleasant feelings escape/expressing my negative feelings). |

Figure 2.2: Brief COPE three composite subscales

The Brief COPE utilising the three subscales (reported above) is scored by summing the items in each subscale. Scores range from six to 24 for the problem-focused subscale; 10 to 40 for the emotion-focused subscale and 12 to 48 for the avoidant coping (dysfunctional) subscale (Cooper *et al.*, 2007). Acceptable levels of reliability

for the brief version were found with internal consistency being reported as .72 for emotion focused, .84 for problem-focussed and .75 for avoidant (dysfunctional) subscales (Cooper *et al.*, 2008b). Moreover, test-retest reliability for over a year was demonstrated for the three subscales. The Brief COPE scale has good internal consistency and test-retest reliability, and concurrent validity has been established (Tuncay *et al.*, 2008).

2.6.3. Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983).

The Hospital Anxiety and Depression Scale (HADS; Appendix 6) is a screening and self-rating instrument for assessing the presence and severity of anxiety and or depression. However, it cannot be used alone to provide a clinical diagnosis (Snaith & Zigmond, 1994). The measure consists of 14 items, with seven items for anxiety (for example, 'I feel tense or wound up') and seven for depression (for example, 'I still enjoy the things I used to enjoy'). Respondents are asked to rate each item using a four point Likert scale ranging from three to zero; (most of the time (= 3), a lot of the time (= 2), time to time, occasionally (= 1), not at all (=0) with three representing a higher frequency of the symptom. They are asked to select the response which is closest to how they have been feeling in the past week. The HADS takes two to five minutes to complete (Snaith, 2003).

A respondent's score can range from 0-21 for anxiety and 0-21 for depression. A total score is obtained by summing the 14 items. A total subscale score (for anxiety and depression) is achieved by summing the respective seven items. The two subscales have been found to be independent measures (Snaith, 2003) with defined categorisation provided:

- Normal (score of 0-7)
- Mild (score of 8-10)

- Moderate (score of 11-14)
- Severe (score of 15-21)

The HADS was originally developed for use with a patient population in a non-psychiatric medical setting. However, its use has been validated with the general population (Bjelland *et al.*, 2002; Lisppers *et al.*, 1997) medical patients (Bjelland *et al.*, 2002; Herrmann, 1997) and with patients in psychiatric and primary care settings (Bjelland *et al.*, 2002). The measure has also been found to be a reliable and valid tool for use across cultures (available in several different languages), gender and most age groups (elderly to adolescents; Bjelland *et al.*, 2002 Herrmann, 1997). The HADS has been used previously when measuring the effectiveness of the self-help service in question and was recommended by the Centre for Change and Innovation (CCI) National Evaluation Team (Scottish Executive, 2006). Therefore, the self-help workers were familiar with its use.

2.6.4. Patient Global Impression of Severity and Patient Global Impression of Improvement Scales (Guy, 1976; Yalcin & Bump, 2003).

Patient Global Impression of Severity (PGI-S) and Patient Global Impression of Improvement Scale (PGI-I) scales (Appendices 7 & 8) were employed in this study. These are both single question global indices, with four points for the PGI-S and seven points for the PGI-I. The first scale (PGI-S) asks the client to rate the severity of their illness or condition on a four-point scale (labelled normal, mild, moderate and severe) and is normally administered prior to treatment and following treatment. The PGI-I asks the client to rate their improvement or worsening from baseline on a seven-point scale (very much better, much better, a little better, no change, a little worse, much worse and very much worse) and is administered at the end of treatment. Global improvement scales have been used mostly in psychopharmacological research (Rush *et al.*, 2005) and both scales are adapted from the Clinical Global Impressions Scale (CGI, Guy, 1976), where ratings are made by

clinicians. The CGI Scale in its original form asked the clinician to provide ratings for severity and improvement of a patient's condition. However, the use of patient rated measures has been strongly encouraged (Freeman, 2007; Rush *et al.*, 2005) and implemented in research and clinical practice to assess a patient's response to pharmacological therapies for mental health difficulties; for example, in the assessment of depression (Hickie *et al.*, 2002; Pandina *et al.*, 2009 (PGI-S used); (Rush *et al.*, 2005; Zimmerman *et al.*, 2004) to assess illness severity with clients with bipolar disorder (Spearing *et al.*, 1997) and in the assessment of anxiety, eating disorders and alcohol abuse (Spitzer *et al.*, 1994). Patient global scales are valuable as they inform us of how patients perceive their condition and can provide us with an overall appraisal of their illness which is not based on an expert's understanding (Gill & Feinstein, 1994; Pandina *et al.*, 2009). Global scales lack precision as they do not provide us with an understanding of why a patient perceives their illness, for example, as mild or as being much better (Feinstein, 1987). However, this is not the purpose of a global scale and is why other tools measuring specific aspects of an illness are available. Global scales when used as a repeated measure over time can provide precise ratings (Feinstein, 1987). Single global indexes are recommended for use as they offer a way of measuring patients' quality of life and their perception of their illness (Gill & Feinstein, 1994). Other health research has demonstrated that the patient rated severity and improvement measures correlate well with objective health measures (e.g. Yalcin & Bump, 2003).

2.6.5. Socio-demographic Form

The socio-demographic form (Appendix 9) was adapted for use from a previous doctoral thesis research project exploring SOC in therapists (Kayal, 2009). The following demographic information about each participant was collected: age, gender, marital status, ethnicity, diagnosis, employment status and postcode (to assess socio-economic status based on area deprivation), previous psychological treatment including self-help and any current medication taken for their

psychological difficulties. This enabled the researcher to describe the sample and to ascertain if there were any relationships between these factors and SOC.

2.6.6. Socio-economic status

Socio-economic status (SES) was assessed using an area based measure of deprivation levels categorised by geographical area (postcodes)

(<http://www.scotland.gov.uk/Topics/Statistics/SIMD/SIMDPostcodeLookup>).

Participants were classified (using postcodes) as belonging to one of five quintile ranges signifying least deprived (1) to most (5) deprived areas using the Scottish Index of Multiple Deprivation (SIMD) (Scottish Government, 2009). The SIMD was originally introduced in 2004 by the Scottish Executive and it identifies small area concentrations of multiple deprivation across Scotland. It has been recommended as the best area based measure to use at NHS Board level when analysing data in a routine or in-depth manner (Information Services Division, 2004). The SIMD (2009) is made up of data from seven domains, which are all thought to be important contributors to deprivation levels (Scottish Government, 2009):

- Current Income
- Employment
- Health
- Education, skills and training
- Geographic access to services
- Housing
- Crime

The SIMD (2009) has 6505 datazones in Scotland with 193 in Dumfries and Galloway and 16 of these fall within the bottom 20% of the most deprived in Scotland (Allan & Bruce, 2007).

SES however, can be assessed using individual and or area based factors. A two pronged approach (area and individual) has been recommended as it provides the most accuracy when calculating SES (Bailey *et al.*, 2003). Assessing SES by individual provides a narrower approach with measurement based on an individual's employment status and or education history and or current income. There is no set way of determining individual SES or deprivation (i.e. using one or all of the factors mentioned) which makes it more difficult to calculate than area-based measures (Allan & Bruce 2007). Moreover, there are disadvantages to using only individual factors. For instance, SES based on occupation can be difficult to map onto traditional classification systems with the existence of many new job titles. In addition, what is deemed to be similar job roles can vary considerably across industries (Allan & Bruce, 2007).

A difficulty of assessing individual SES is that in-depth information is required regarding an individual's circumstances for instance, regarding their occupation. In order to classify socio-economic status using the National Statistics Socio-economic Classification (NS-SEC, Rose *et al.*, 2005) self-coded version information about participants' job title, size of the organisation they belong to and their responsibilities such as supervisory status must be known. The self-coded version is for use with surveys when gaining in-depth information cannot be justified. However, although the self-coded version requires less information the information required is still substantial when undertaking a survey with regards to participant time spent completing forms and confidentiality. Therefore, the current study employed area-based measures due to less time constraints being placed on participants and as exploring SES was not a primary study aim this was not felt to be justified.

2.7. Ethical Considerations

Following guidelines on conducting ethical research, ethical approval for the study was applied for and obtained from: The West of Scotland NHS Research Ethics Service (Appendix 10), the local Research and Development Support Unit

(management approval; Appendix 10). To ensure informed consent & voluntary participation, potential participants were contacted via telephone to ask if they would wish to receive information about the study. For those wishing further information a pack was sent containing an invitation letter, information sheet, consent form and measures. Participants had a minimum of three days to consider taking part before completing forms and bringing them to their clinic appointment. In the clinic, self-help workers ensured their clients had provided informed consent before completing the next stage of the study. Participants were informed via telephone, in the information sheet, invitation letter and by their self-help worker that participation was voluntary and their treatment would not be affected if they did not wish to take part. Participants were informed by their self-help worker and in the information sheet that they could withdraw from the study at any time. The information sheet informed participants that their initial data may be used for comparison analysis if they withdrew from the study.

For participants who did not understand English, translation services would be provided (as is normal procedure) through the NHS. As the self-help service is based on administering written self-help guides clients who are deemed appropriate for the service would be anticipated to understand written information. If not, where possible self-help workers would help to facilitate. Participants who were deemed as not understanding what is being asked of them or the information given would be withdrawn from the study.

Following standard self-help procedure, any participants who reported suicidal ideation or intent would be referred onto an appropriate service or agency. This procedure would also be followed for participants reporting severe mental health problems, substance misuse problems and self-harm behaviour. Some clients as seen occasionally in routine clinical practice may become upset by the questions asked. If this occurred participants would be asked by their self-help worker if they wished to

withdraw from the study and additional support sought from the psychology department. All participants were in the care of the NHS and able to access support provided from the organisation.

To ensure the confidentiality of the participant no one outwith the clinical care team, including the principal researcher, had access to their identifiable personal information. Anonymised questionnaire data (linked by code not assigned by researcher) and anonymised demographic data including postcodes was accessible to the researcher. At the end of the study the researcher had access to written informed consent forms however they were kept separate from participants' other study data.

Anonymised data were entered into an SPSS database, which was password protected and stored on NHS computers. Only the researcher and academic supervisor had access to the database for the purpose of data analysis. To enable the dissemination of the results, an easily accessible report of the findings will be available to participants on request from the psychology department by December 2010.

2.8. Data Analysis

The study data were analysed using SPSS version 17.0 database. Prior to deciding which statistical analysis to employ it was important to investigate the distribution of the data. Parametric analysis can only be conducted when the data is assumed to be a. normally distributed, b. the data have homogeneity of variance, c. the data are at an interval or ratio level and d. any between-subject data are independent (Field, 2005; Pallant, 2007). Therefore, levels of skewness (the symmetry of the distribution) and kurtosis (over or under population of the tails of the distribution) were converted to z-scores and compared to those expected from normally distributed data.

The z-scores for all study variables (Appendix 11) were less than 2.58 the middle threshold (upper threshold 3.29) thus indicating acceptable levels of normality (Field, 2005). Therefore, the data were assumed to meet normality and parametric analysis was undertaken with a significance level of $p < .05$ set. Normality of the data was further examined by generating histograms and QQ plots of the data (Appendix 12).

Descriptive statistics, Pearson's and Spearman's correlations, independent and paired samples t-tests and multiple regression modelling were conducted to address the outlined hypotheses. When the analysis was related to the specific hypotheses (direction of the relationship was predicted) one-tailed tests were employed. Correlational analysis was conducted to examine SOC's possible relationships with presenting difficulty of anxiety, post patient rated outcome, coping style, age, and socio-economic status. Multiple regression modelling was used to examine the extent to which SOC scores predicted therapeutic outcome. Other variables were also entered into the model such as coping style and pre anxiety and depression scores to assess if they were possible predictors of outcome. Coping style was not assessed as a possible mediator, as initially intended, due to the data not meeting the criteria deemed as necessary to establish a mediation effect by Baron and Kenny (1986).

CHAPTER THREE: RESULTS

3.1. Detailed participant characteristics

Demographic characteristics of the study participants are reported in Table 3.1. The sample consisted of 69 females and 17 males. The mean age of participants was 44 years ($SD = 8.55$), range 30-61 years. The majority were married or living as married (64.0 per cent), white (98.8 per cent) employed (76.7 per cent) were not taking medication (70.9 per cent), had not attended previous therapy (62.8 per cent) and had not received a diagnosis (79.1 per cent) in the past. The sample was divided, for the purpose of data analysis, into completers and non-completers. Completers refers to subjects who have completed both pre and post data ($N = 51$) and non-completers refers to those who only completed pre data ($N = 35$). The number of sessions attended varied for the two groups. Of the completers group 78.4 per cent attended 3 sessions, 21.6 per cent attended 2 and no-one attended only one session. However, for the non-completers 54.3 per cent attended only one session and 21.6 per cent attended 2 with 34.3 per cent of the sample's number of sessions being unknown.

Table 3.1: Demographic characteristics of study participants

| Demographic Characteristics (Total Sample) | Frequency (%) (<i>N</i> = 86) |
|--|---|
| Age <ul style="list-style-type: none"> • 30-40 • 41-50 • 51-60 • 61-65 | 30 (34.9%) 37 (43.0%) 15 (17.4%) 4 (4.7%) |
| Gender <ul style="list-style-type: none"> • Females • Males | 69 (80.2%) 17 (19.8%) |
| Employment Status <ul style="list-style-type: none"> • Employed • Self Employed • Unemployed • Retired | 66 (76.7%) 3 (3.5%) 14 (16.3%) 3 (3.5%) |
| Marital Status <ul style="list-style-type: none"> • Single/never been married • Married/living as married • Divorced, widowed, separated • Other | 10 (11.6%) 55 (64.0%) 18 (21.0%) 3 (3.5%) |
| Ethnicity <ul style="list-style-type: none"> • White • Non White | 85 (98.8%) 1 (1.2%) |
| Psychotropic Medication <ul style="list-style-type: none"> • Yes • No | (<i>N</i> = 85, 1 missing) 24 (27.9%) 61 (70.9%) |
| Type of Psychotropic Medication <ul style="list-style-type: none"> • Anti-depressants • Beta-blockers • Benzodiazepine • Not specified | (<i>N</i> = 24) 16 (18.6%) 5 (5.8%) 2 (2.3%) 1 (1.2%) |
| Previous Therapy <ul style="list-style-type: none"> • Yes • No | (<i>N</i> = 85, 1 missing) 31 (36.0%) 54 (62.8%) |
| Previous Diagnosis <ul style="list-style-type: none"> • Yes • No • Don't Know | (<i>N</i> = 85, 1 missing) 14 (16.3%) 68 (79.1%) 3 (3.5%) |

3.1.1. Presenting Problems

Of the total sample 22.1 per cent reported experiencing depression, 46.5 per cent anxiety, 19.8 per cent stress at work, 18.6 per cent grief or loss, 1.2 per cent panic, 4.7 per cent mild post traumatic stress disorder, 22.1 per cent relationship difficulties and 1.2 per cent anger. No-one reported experiencing health anxiety or adjustment difficulties in relation to illness. Other presenting difficulties were adjustment to retirement (2 per cent), low self-esteem (2 per cent), and insomnia (2 per cent). In addition, many of the participants had co-morbid difficulties, with 34.9 per cent of the total sample reporting experiencing two psychological difficulties, 15.1 per cent reporting three and 1.2 per cent reporting four. Less than half of the sample reported experiencing only one psychological difficulty (39.5 per cent).

3.2. Descriptive statistics for the study measures

Descriptive statistics were calculated for the study measures for the total sample ($N = 86$), participants who only completed pre data (non-completers) and those who completed pre and post data (completers) (Table 3.2).

Table 3.2: Descriptive statistics for main study variables

| Measure | Pre total sample Mean (N = 86) | Pre non completers Mean* (N = 35) | Pre completers Mean** (N = 51) | Post completers Mean (N = 51) |
|---|---|--|---|---|
| Sense of Coherence Scale (13-item) (Pre measure) | 45.74 (SD = 13.73) | 47.40 (SD = 14.04) | 44.61 (SD = 13.54) | N/A |
| SOC Meaningfulness Subscale | 16.10 (SD = 5.23) | 16.60 (SD = 6.08) | 15.76 (SD = 4.59) | N/A |
| SOC Manageability Subscale | 13.91 (SD = 5.36) | 14.49 (SD = 5.23) | 13.51 (SD = 5.46) | N/A |
| SOC Comprehensibility Subscale | 15.73 (SD = 5.58) | 16.31 (SD = 5.77) | 15.33 (SD = 5.47) | N/A |
| HADS Anxiety Subscale (Pre & Post measure) | 13.01 (SD = 3.68) | 13.00 (SD = 4.05) | 13.02 (SD = 3.45) | 7.69 (SD = 3.06) |
| HADS Depression Subscale (Pre & Post measure) | 9.24 (SD = 4.37) | 8.74 (SD = 4.03) | 9.59 (SD = 4.60) | 4.57 (SD = 2.99) |
| COPE Emotion Focused Subscale (Pre measure) | 21.44 (SD = 5.10) | 21.91 (SD = 4.77) | 21.12 (SD = 5.34) | N/A |
| COPE Problem Focused Subscale (Pre measure) | 15.45 (SD = 4.14) | 14.63 (SD 3.95) | 16.02 (SD 4.22) | N/A |
| COPE Avoidant Subscale (Pre measure) | 26.44 (SD = 5.22) | 26.66 (SD = 5.48) | 26.22 (SD = 5.08) | N/A |
| CGI-S (Pre & Post measure) (N=81) | 3.11 (SD = 0.72) | 3.20 (SD = 0.61) | 3.04 (SD = 0.78) | 2.06 (SD = 0.75) |
| CGI-I (Post measure) | N/A | N/A | N/A | 1.98 (SD = 0.73) |

*Non-completers: Only pre data completed. **Completers: Pre & post data completed.

3.2.1. Sense of Coherence Scale

On average, participants in the total sample scored 45.74 (SD = 13.73) on the SOC scale (13-item version). There are no published cut-off scores provided for the SOC measure. However, the total sample's mean score is lower (lowest score) when compared to other studies included in Antonovsky's (1993) normative table which reported on studies that employed the 13-item scale (Table 3.3). The mean SOC score for the non completers (pre data only) was slightly higher ($M = 47.40$) and for the completers slightly lower ($M = 44.61$). The mean scores for the 3 SOC subscales are also provided in Table 6 and it can be seen that they are higher for the non completers group (pre data only). The difference in mean scores between the two groups for the 3 subscales; meaningfulness, ($t(59.60) = 0.689$, $p > 0.05$) manageability ($t(84) = 0.828$, $p > .05$) and comprehensibility ($t(84) = 0.798$, $p > .05$) was not statistically significant. A Chi-square test for independence indicated a significant difference between sample group (completers and non completers) and number of sessions attended, $\chi^2(2, N = 74) = 60.30$, $p < .001$, Cramer's $V = 0.903$. Participants who did not complete post data (non-completers) had fewer self-help sessions (reported in participants section) and a higher mean SOC score compared with those who had completed pre and post data (completers). However, the difference in SOC score between the two groups was not statistically significant, $t(84) = 0.925$, $p > .05$, (two-tailed).

Table 3.3: Antonovsky's normative Table of mean SOC scores with additional studies (1993).

| Antonovsky's Normative Table of mean SOC scores with additional studies (1993) using SOC-13 Scale. | | | |
|---|--------------------|-----------------|-------------|
| Sample | Sample Size | Mean-SOC | SD |
| Kibbutz religious, mean age 46 | 105 | 68.7 | 10.0 |
| U.S. university faculty, men | 145 | 66.7 | 9.8 |
| U.S. university faculty, women | 157 | 66.4 | 10.6 |
| Kibbutz (secular), mean age 43 | 125 | 66.4 | 9.9 |
| U.S. male patients at VA clinics, 55+ | 240 | 61.9 | 17.8 |
| Israeli adolescent girls | 371 | 58.6 | 10.4 |
| Israeli adolescent boys | 371 | 58.6 | 10.4 |
| U.S. undergraduates | 59 | 58.5 | 12.1 |
| U.S. minority homeless women | 581 | 55.0b | 0.7 |
| Patients with major depression | *50 | 45.0b | 10.30 |
| Service users of mental health services (rejection experiences) | **96 | 47.0 | 12.2 |
| Current study | 83 | 45.7 | 13.7 |

b = Used wording simplification and 5 point scale. Conducted calculation to convert to 13-item scale.

Studies added to table: *Carstens & Spangenberg, (1997); ** Lundberg *et al.*, (2009).

3.2.2. HADS Scale

The mean pre-score for the anxiety subscale for the total sample was 13.01 (SD = 3.68), which is within the moderate clinical range. Of the total sample 90.7% fell within the clinical range for this measure at the beginning of the intervention. The mean pre score for the depression subscale (total sample) of the HADS was 9.24 (SD = 4.37) falling within the mild clinical range. Of the total sample 61.7% were deemed to be within the clinical range for depression at the start of the intervention.

The mean pre anxiety and depression HADS score for the non-completers and completers was similar to the total sample (Table 3.2). The clinical severity, as measured by the HADS, of the non-completers and completers at the start of

self-help was considered (Table 3.4.) As can be seen, unexpectedly a large proportion of the sample for both the non-completers and completers fell within the moderate and severe ranges on the HADS anxiety scale. However, the majority of these participants were not referred onto other services and were deemed suitable for self-help. The difference in severity for the completers and non-completers on the anxiety ($t(84) = 0.24, p > .05$) and depression ($t(84) = 0.88, p > .05$) subscales was not statistically significant.

Table 3.4: Clinical severity for the sample groups

| Clinical severity of the sample groups (Pre measure) | | | | |
|--|---------------------------------|-----------------------------|---------------------------------|-----------------------------|
| | Anxiety Subscale | | Depression Subscale | |
| Clinical Severity (%) | Non Completers <i>N</i> = 35 | Completers <i>N</i> = 51 | Non Completers <i>N</i> = 35 | Completers <i>N</i> = 51 |
| Normal | 11.4% | 7.8% | 40.0% | 37.3% |
| Mild | 20.0% | 11.8% | 22.9% | 21.6% |
| Moderate | 22.9% | 49.0% | 31.4% | 27.5% |
| Severe | 45.7% | 31.4% | 5.7% | 13.7% |

Non completers = Pre data only. Completers = Pre & Post data.

A mean of 7.69 ($SD = 3.06$) was found for the HADS post anxiety (completers) suggesting the sample were on average within the normal-mild range. On average these participants (completers) fell within the normal range for depression post intervention with a mean of 4.57 ($SD = 2.99$). Therefore, participants' scores (for completers) decreased from pre intervention to post intervention on both the anxiety and depression subscales of the HADS. A paired samples t-test found that this was a statistically significant difference for both anxiety ($t(50) = 10.75, p < .001$, two-tailed) and depression ($t(50) = 6.65, p < .001$, two-tailed).

3.2.3. COPE subscales

Participants (measured pre-intervention) had a mean (total sample) score of 26.40 (SD = 5.22) for the avoidant coping subscale, on average they scored 21.44 (SD = 5.10) for the emotion focused subscale and 15.45 (SD = 4.14) was the mean score for the problem focused subscale (SD = 4.14). The mean scores however, cannot be compared as the number of items contributing to each subscale varied (Avoidant Coping = 12 items; Emotion Focused Coping = 10 items and Problem Focused Coping = 6 items). As discussed in chapter 2, no cut-off scores are provided for the Brief COPE, with the higher the score indicating the greater the use of the specified coping strategies. No statistically significant difference was found for the mean scores for males and females for avoidant coping ($t(84) = -0.169, p > .05$); emotion focused coping ($t(84) = 1.46, p > .05$) or problem focused ($t(84) = 0.894, p > .05$). Moreover, no statistically significant difference was found for the mean scores for completers and non completers for avoidant coping ($t(84) = 0.383, p > .05$); emotion focused coping ($t(84) = 0.709, p > .05$) or problem focused ($t(84) = 1.540, p > .05$).

The relationship between SOC (including total SOC score & 3 subscale scores) and coping style (emotion-focused, problem-focused and avoidant coping) was evaluated (Table 3.5). No significant association was found between SOC and problem-focused coping ($r = .060, N = 86, p > .05$) or emotion-focused coping ($r = .165, N = 86, p > .05$). A negative correlation between SOC and avoidant coping ($r = -0.416, N = 86, p < .001$) was found, with high levels of SOC associated with lower levels of avoidant coping (medium effect size $r = 0.30$ to 0.49 , Cohen, 1988). When examining the relationship between the SOC subscales and coping style, meaningfulness was found to be positively associated with emotion-focused coping ($r = .324, N = 86, p < .05$) and problem-focused coping ($r = .261, N = 86, p < .05$); therefore suggesting the higher someone scores on meaningfulness on the SOC the more someone employs emotion and problem-focused coping. Meaningfulness was found to be negatively correlated with avoidant coping ($r = -.229, N = 86, p < .05$), with high levels of meaningfulness associated with lower levels of avoidant coping,

though this represents a small effect. In relation to the other SOC subscales the only significant relationships found were between manageability and avoidant coping ($r = -.431$, $N = 86$, $p < .001$) and comprehensibility and avoidant coping ($r = -.395$, $N = 86$, $p < .001$), so that higher scores on all three SOC subscales were associated with less use of avoidant coping.

The relationship between patient rated outcomes (PGI-I & PGI-S) and coping style (problem-focused, emotion-focused and avoidant) was also examined. The only significant relationships found were between patient rated improvement (PGI) and emotion-focused coping ($r = -.254$, $p < .05$) with greater improvement associated with less use of emotion-focused coping. Problem-focused coping was found to be positively associated with emotion-focused coping ($r = .639$, $p < .001$) suggesting individuals who employed problem-focused coping were also likely to employ emotion-focused coping.

In addition, the relationship between coping style and change in anxiety and depression scores was examined. Significant negative relationships were found between depression and problem ($r = -.272$, $p < .05$) and emotion-focused coping ($r = -.235$, $p < .05$). This suggests that the greater the use of problem and emotion-focused coping the less change in depression.

3.3. Correlational analysis for the main study variables

Pearson's product-moment correlations were undertaken (Table 3.5) to assess the relationships between SOC, anxiety, depression and coping. When evaluating the size of the value of the correlation coefficient the guidelines by Cohen (1988) will be followed here: $r = .10$ -.29 (small); $r = .30$ to .49 (medium) and $r = .50$ to 1.0 (large). This is a measure of the strength of the relationship between the variables under investigation.

Table 3.5: Pearson correlational analysis for main study variables

| | SOC <i>N</i> = 86 | Pre Anxiety <i>N</i> = 86 | Pre Depression <i>N</i> = 86 | Post Anxiety <i>N</i> = 51 | Post Depression <i>N</i> = 51 | SOC Meaningfulness <i>N</i> = 86 | SOC Manageability <i>N</i> = 86 | SOC Comprehensibility <i>N</i> = 86 | Emotion-Focused COPE <i>N</i> = 86 | Problem-Focused COPE <i>N</i> = 86 | Avoidant COPE <i>N</i> = 86 |
|---------------------|-----------------------------|-------------------------------------|--|--------------------------------------|---|--|---|---|--|--|---------------------------------------|
| SOC | 1 | | | | | | | | | | |
| PreAnx | -.587 .001** | 1 | | | | | | | | | |
| PreDep | -.543 .001** | .407 .001** | 1 | | | | | | | | |
| PostAnx | -.191 .090 | .414 .001** | -.058 .344 | 1 | | | | | | | |
| PostDep | .080 .288 | .032 .412 | .043 .381 | .495 .001** | 1 | | | | | | |
| SOC Meaningf | .788 .001** | -.344 .001** | -.608 .001** | -.075 .300 | -.115 .211 | 1 | | | | | |
| SOC Manag | .874 .001** | -.546 .001** | -.394 .001** | -.177 .107 | -.107 .227 | .505 .001** | 1 | | | | |
| SOC Compr | .883 .001** | -.599 .001** | -.387 .001** | -.232 .050 | .005 .485 | .516 .001** | .716 .001** | 1 | | | |
| EF COPE | .165 .064 | .025 .411 | -.322 .001** | .050 .364 | -.173 .113 | .324 .001** | .014 .451 | .090 .206 | 1 | | |
| PF COPE | .060 .291 | .058 .298 | -.342 .001** | .205 .075 | -.080 .288 | .261 .008* | .105 .167 | .005 .483 | .641 .001** | 1 | |
| Avoid COPE | -.416 .001** | .406 .001** | .209 .027* | .188 .093 | .089 .267 | -.229 .017* | -.431 .001** | -.395 .001** | -.030 .390 | -.120 .135 | 1 |

Significance is indicated: $p < 0.05^*$ and $p < 0.01^{**}$

The relationship between SOC, patient rated severity and improvement was investigated using a Spearman's rank order correlation test (Table 3.6). This was conducted as the data relating to these variables (PGI-S & PGI-I) was deemed to be ordinal and therefore a non-parametric test was recommended (Pallant, 2007).

Table 3.6: Spearman's correlational analysis for SOC, PGI-I and PGI-S

| | SOC (Pre) | PGI-S (Pre) | PGI-S (Post) | PGI-I (Post) |
|-------------------------|----------------------|-----------------------------|---------------------------|----------------------------|
| SOC (Pre) | $r = 1$ | $r = -.238$ $p = .017^*$ | $r = -.203$ $p = .076$ | $r = -.32$ $p = .412$ |
| PGI-S (Pre) | | $r = 1$ | $r = .208$ $p = .074$ | $r = -.104$ $p = .236$ |
| PGI-S (Post) | | | $r = 1$ | $r = .380$ $p = .003^*$ |
| PGI-I (Post) | | | | $r = 1$ |

Significance is indicated: $p < 0.05^*$ and $p < 0.01$. PGI-I = Patient Global Impression of Improvement; PGI-S Patient Global Impression of Severity

3.4. Hypothesis 1: SOC scores will be negatively associated with pre anxiety scores.

A significant strong negative correlation was found between SOC and pre anxiety, $r = -.58$, $p < .001$, with high levels of SOC associated with lower levels of anxiety (Table 3.5). In addition, a strong negative correlation was also found for SOC and pre depression, $r = -.524$, $p < .001$, with high SOC associated with lower levels of depression. Therefore, hypothesis 1 was supported.

3.5. Hypothesis 2: SOC scores will be negatively associated with post intervention anxiety and depression scores.

Pearson's product-moment correlational analysis was conducted to assess the relationship between SOC scores and post intervention anxiety and depression scores (Table 3.5). SOC scores were not found to be significantly associated with anxiety ($r = -.191$, $N = 51$, $p > .05$), or depression scores ($r = .80$, $N = 51$, $p > .05$).

3.6. Hypothesis 3: SOC scores will be positively associated with outcome as measured by change in anxiety and depression scores and patient rated improvement scores after treatment.

A Pearson's product-moment correlation coefficient was conducted to assess the relationship between SOC scores and change (from pre-post) in anxiety and depression scores (HADS). A change score for both anxiety and depression was calculated by subtracting the post scores from the pre scores, which was then used in the analysis. The anxiety HADS change score was significantly positively correlated with SOC scores, $r = .424$, $p < .005$. The depression HADS change score was also significantly correlated with SOC scores, $r = .410$, $p < .005$. Both of these correlations denote a medium effect size (medium: $r = .30-.49$, Cohen, 1988) and suggest that high SOC scores are associated with greater change on anxiety and depression HADS subscales. The anxiety change score and depression change score were positively correlated, $r = .543$, $p < .005$.

Correlational analysis was also conducted to assess the relationship between SOC and patient rated outcome scores (PGI-I & PGI-S) at pre (PGI-S) and post intervention. No significant association was found between participants' level of SOC (pre-intervention) and their self-rated outcome scores (PGI-I & PGI-S (post))

(Table 3.6). However, a significant negative relationship was found for pre intervention PGI-S score (patient rated severity) and SOC, $r = -.238$ $p = < .05$, with

high SOC associated with less patient rated severity. This relationship denotes a small effect size (small: $r = .10-.29$).

3.7. Hypothesis 4: As SOC scores will predict therapeutic outcome, this relationship will be mediated by problem- focused and emotion-focused coping style.

The method employed by Baron and Kenny (1986) to investigate a possible mediating effect was not conducted as the criteria for coping style to be a possible mediator were not met. Baron and Kenny (1986) state that to establish mediation the following conditions must occur:

1. The independent variable (SOC) must affect the mediator (coping) in the first equation. As reported in Table 3.5 total SOC was not correlated with problem focused or emotion-focused coping. Although a negative relationship was found between SOC and avoidant coping, not all conditions were met to apply the mediation analysis.
2. The independent variable (SOC) must be shown to affect the dependent variable (post anxiety and depression). This condition was not met as there was no association found between SOC and post anxiety and SOC and post depression (Table 3.5).
3. The mediator (coping style) must affect the dependent variable (post anxiety and post depression). This condition was not met as no association was found between the 3 coping styles and post anxiety and post depression (Table 3.5).

Although the correlation between SOC and outcome was not significant, suggesting no further analysis was necessary, multiple regression analysis was conducted. This was undertaken because it is possible that potential relationships may not be seen in the correlation due to a suppression effect but may be identified within the regression model.

Hierarchical regression analysis was undertaken entering grouped variables into the analysis based on supported theoretical reasons (evidence suggesting pre anxiety score, SOC and coping style are likely to predict post anxiety scores). The dependent variable was total post anxiety HADS score. The predictor variables were entered in three blocks:

1. Pre total anxiety HADS score
2. SOC total Score
3. Subscale scores of the COPE: Problem-focused subscale, Emotion-focused subscale and Avoidant Coping subscale.

Table 3.7: Hierarchical multiple regression analysis for post anxiety (HADS)

| Multiple regression analysis for outcome post anxiety | | | | | | |
|---|--------------------------|-------------------------|--------------------------|-------------------------------------|-------------------------|-----------------------|
| Independent Variable | B* | Standard Error of B | t-value | p-value (significance) | Adjusted R ² | R ² Change |
| 1. Pre anxiety total score | 0.344 | 0.108 | 3.188 | .002 | 0.155 | 0.172 |
| 1. Pre anxiety score 2. SOC total score | 0.383 0.018 | 0.134 0.036 | 2.854 0.499 | .006 .620 <i>n.s.</i> | 0.142 | 0.004 |
| 1. Pre anxiety score 2. SOC total score 3. Emotion Focused subscale | 0.356 0.024 -0.095 | 0.140 0.038 0.105 | 2.547 0.624 -0.903 | .014 .536 .372 <i>n.s.</i> | 0.138 | 0.048 |
| Problem Focused subscale | 0.211 | 0.129 | 1.63 | .108 <i>n.s.</i> | | |
| Avoidant Coping subscale | 0.052 | 0.088 | 0.585 | .562 <i>n.s.</i> | | |

* Unstandardised B

As a result of the small sample size adjusted R^2 values are reported (Tabachnick & Fidell, 1996). It can be seen from Table 11 that only pre-anxiety ($p < .05$) was found to have a significant effect, accounting for 15.5% variance post anxiety [$F(1,49) = 10.16$, $p < .05$]. When the total SOC score was entered into the analysis the model explained 14.2 % of the variance, however there was no significant R^2 change. SOC explained an additional 0.40% of the variance when pre anxiety was controlled for, R squared change = 0.004, [$F(2,48) = 5.13$, $p < .05$]. When the coping subscales (emotion focused, problem focused and avoidant) were entered in the model 13.8% of the variance was explained, with no significant change in R^2 . Taking all three blocks of variables into account the model as a whole was found to be significant [$F(5,45) = 2.605$, $p < .05$], however pre anxiety score was the only significant predictor ($B = 0.356$, $p < .05$).

Hierarchical regression was also undertaken to investigate if any of the grouped independent variables predicted depression outcome scores. They were entered in the following blocks (Table 3.8):

1. Pre total depression HADS score
2. SOC total score
3. Subscales scores of the COPE: Problem focused subscale, Emotion focused subscale and Avoidant Coping subscale.

Table 3.8: Hierarchical multiple regression analysis for post depression (HADS)

| Multiple regression analysis for outcome post depression | | | | | | |
|--|--------|---------------------|---------|------------------------|-------------------------|-----------------------|
| Independent Variable | B* | Standard Error of B | t-value | p-value (significance) | Adjusted R ² | R ² Change |
| 1. Pre Depression total score | 0.030 | 0.098 | 0.304 | .762 | -0.018 | 0.002 |
| 1. Pre Depression total score | 0.000 | 0.117 | -0.001 | .999 | -0.005 | 0.005 |
| 2. SOC total score | -0.018 | 0.037 | -0.469 | .641 | | |
| 1. Pre Depression total score | -0.031 | 0.128 | -0.239 | .812 | | |
| 2. SOC total score | -0.008 | 0.042 | -0.199 | .843 | | |
| 3. Emotion Focused Subscale | -0.125 | 0.114 | -1.089 | .282 | -0.066 | 0.035 |
| Problem Focused Subscale | 0.038 | 0.145 | 0.264 | .793 | | |
| Avoidant Coping Subscale | 0.047 | 0.094 | 0.504 | .617 | | |

*Unstandardised B

The multiple regression model shows that pre depression did not account for any of the variance (Adjusted $R^2 = -0.018$) in post depression [$F(1,49) = 0.092$, $p > .05$]. When the total SOC score was entered into the analysis the model was not significant (Adjusted $R^2 = -0.005$; R squared change = 0.005; $F(2, 48) = 0.155$, $p > .05$). In addition, when the coping subscales (emotion focused, problem focused and avoidant) were entered in the model the model was not significant (Adjusted $R^2 = -0.066$; R squared change = 0.035; $F(5, 45) = 0.384$, $p > .05$).

A Spearman's rank order correlation test was conducted to investigate the relationship between patient rated outcome (PGI-S & PGI-I) and coping style. Patient rated outcome was not entered into the regression analysis as the data was non-parametric. No significant relationship was found between post scores of patient rated severity and emotion focused coping, $r = -.025$, $p > .05$; problem focused coping, $r = .0119$, $p > .05$, and avoidant coping, $r = .131$, $p > .05$. In addition, no significant association was observed between patient rated improvement scores and emotion focused coping, $r = -.254$, $p > .05$; problem focused coping, $r = -.067$,

$p > .05$ and avoidant coping, $r = -0.039$, $p > .05$. A significant negative relationship was found between pre patient rated severity scores and emotion focused coping, $r = -.237$, $p < .05$ and problem focused coping, $r = -.238$, $p < .05$. This suggests that the greater the severity patients report they utilise problem and emotion focused coping less. Avoidant coping was not associated with pre patient rated severity, $r = .135$, $p > .05$. Problem and emotion focused coping were positively correlated, $r = .639$, $p < .01$, whilst no relationship was found between these two coping styles and avoidant coping, $r = -.41$, $p > .05$ (emotion focused); $r = -.177$, $p > .05$ (problem focused).

3.8. Secondary Aims

The secondary objectives of the study were to explore the possible relationships between medication, outcome, socio-economic status, age and participants' SOC.

An independent samples t-test was conducted to compare the HADS outcome scores for participants taking medication with those not taking medication. There was no significant difference in post anxiety scores for participants taking medication compared with those not taking medication ($t(49) = 0.224$, $p > .05$). In addition, no significant difference was also found for the post depression scores for participant's taking medication and for those not taking medication ($t(49) = 0.824$, $p > .05$). Therefore, it appears that there was no significant medication effect on outcome.

3.9. Hypothesis 5: SOC scores will be positively associated with socio-economic status.

Before exploring this hypothesis frequencies were conducted to investigate deprivation levels (from the Scottish Index of Multiple Deprivation 2009) within the current sample (Table 14). The SIMD09 area deprivation categorisation classifies individuals by postcode as belonging to one of 5 quintile ranges signifying least

deprived 1 to 5 most deprived areas. It is evident (from Table 3.9) that the majority of participants (29.1%) were classified (by postcode) within quintile range 3, the middle deprivation level. A small percentage of the sample belonged to either extremes of the quintile range denoting the least (quintile 5 = 4.7%) and most (quintile 1 = 14.0%) deprived areas.

Table 3.9: Frequency Table for socio-economic status (SIMD09)

| Scottish Index of Multiple Deprivation (2009) | | |
|---|---|--------------------------------|
| Quintile (20 %) Range | | Frequency (%) <i>N</i> = 85 |
| (Most Deprived) | 1 | 12 (14.0%) |
| | 2 | 22 (25.6%) |
| | 3 | 25 (29.1%) |
| | 4 | 22 (25.6%) |
| (Least Deprived) | 5 | 4 (4.7%) |

In order to investigate the hypothesis, lower SOC will be associated with lower socio-economic status (based on area deprivation) non-parametric correlation analysis was undertaken. A Spearman's rank order correlation coefficient found SOC was significantly associated with socioeconomic status ($r=.277$, $p<.05$) with high levels of SOC associated with higher socio-economic status. Thus supporting the current hypothesis. However, it should be noted that this was not a strong association (small effect size).

3.10. Hypothesis 6: Sense of coherence scores will be positively associated with age.

To determine if the above relationship between SOC and age was significant correlational analysis was undertaken. A Pearson's product-moment correlation coefficient test found SOC was positively correlated with age, $r = .243$, $p < .05$. This indicated that SOC increased with age.

CHAPTER 4: DISCUSSION

4.1. Study aims

The main aim of the current study was to determine whether SOC predicted therapeutic outcome of individuals following a guided self-help intervention. Another primary aim was to explore the possibility that coping style mediated this relationship. This chapter will examine the research findings in relation to the study hypotheses. The clinical implications of the findings will be discussed along with limitations of the study and suggestions for future research.

4.2. Summary of findings

Hypothesis 1 stated that sense of coherence scores would be negatively associated with anxiety scores at the start of therapy. This hypothesis was confirmed as a strong negative relationship was found between SOC and pre anxiety scores. This finding supported previous research that found strong associations between levels of SOC and anxiety (Antonovsky & Sagy, 1986; Eriksson & Lindström, 2006; Frenz *et al.*, 1993; Hart *et al.*, 1991; Ristkari *et al.*, 2006; Schnyder *et al.*, 2000). Antonovsky and Sagy (1985) suggested that SOC and trait anxiety may exist on the same continuum. They believed that individuals with high levels of SOC would see life as predictable and manageable and would be less likely to appraise situations as threatening. In contrast, for individuals with lower levels of SOC, life is perceived as unpredictable, less manageable and less worthy of investment, producing greater levels of anxiety. This suggestion is pertinent within the current study as people would tend to seek psychological help from services when they feel they are not coping well with their life circumstances or stressful events, and would therefore be more likely to perceive their lives in a way which reflects lower SOC. Furthermore, research has reported that SOC may be affected negatively by adverse life events (Antonovsky, 1987; Schnyder *et al.*, 2000; Volanen *et al.*, 2007).

When taking this previous research into account individuals presenting for psychological therapy may have lower levels of SOC, possibly as a result of experiencing negative life events and thus an increased tendency to experience anxiety. Indeed stress at work, relationship difficulties and grief or loss each accounted for approximately 20% of the participants presenting problems. However, due to not knowing participants' pre-morbid SOC level conclusions regarding SOC reduction cannot be made.

The majority of studies exploring SOC and mental health, including anxiety, have employed correlational analysis thus no conclusions regarding causality can be drawn (Geyer, 1997; Kivimäki, Feldt *et al.*, 2000). Consequently, uncertainty remains regarding whether SOC influences mental health or mental health affects SOC. The current study addressed this to an extent by examining the relationship between SOC and anxiety and depression after treatment. It is important to report, although not a main hypothesis for the current study, that a significant negative relationship was found between SOC and pre depression. Hypotheses 2 and 3 predicted that sense of coherence would affect patient outcome after therapy. To test this, the relationships between SOC and post therapy anxiety and depression and patient rated improvement were examined. In addition, the association between SOC and the change in depression and anxiety between the start and end of therapy was tested. The second and third hypotheses were not supported. There was no significant negative association found between SOC at baseline (total and subscale scores) and post intervention anxiety and depression scores (therapeutic outcome). In addition, no significant positive association was found between SOC and patient rated improvement scores.

There are very few studies that have investigated the relationship between SOC and therapeutic outcome and the current study is the first to explore this in a psychology self-help service. However, the current study findings do not support research by

Petrie and Azariah (1990) that found SOC was associated with treatment outcome of patients involved in a CBT based pain management programme. They found that the SOC meaningfulness subscale was significantly associated with the pain intensity clients reported after treatment. Nevertheless it is possible that clients attending a pain-based service are more homogenous in their current experiences (e.g. longer term, more similar difficulties and equal desire for pain to be eased) than clients who might attend a self-help service with a broader referral criteria. However, the authors suggested that their results were limited due to their use of self-report measures and short follow-up as the treatment gains may not have lasted long term.

In the current study a change score, the difference between pre and post anxiety and depression scores, for the HADS was calculated and its relationship with SOC was explored. The HADS anxiety and depression change scores were significantly positively associated with SOC scores. This suggested that high SOC scores were associated with more change on the anxiety and depression subscales. This finding supports Petrie and Azariah's (1990) results that high SOC is related to greater therapeutic outcome and greater response to treatment. However, despite this finding no association was found between SOC and therapeutic outcome (post anxiety and depression scores and patient rated improvement scores).

The current study proposed that SOC scores would predict therapeutic outcome and this relationship was expected to be mediated by problem-focused and emotion-focused coping style. However, as the relationship between SOC and therapeutic outcome was not supported, this possibility was not explored in the present study. Multiple regression analysis showed that the only variable found to predict outcome (post anxiety and depression scores) were the pre anxiety and depression scores. These findings therefore do not support Petrie and Azariah's (1990) results, where SOC was a predictor of outcome of the patients in a CBT pain management intervention. While Petrie and Azariah concluded that assessing SOC may be a useful way of identifying potential response to psychological treatment, the results of this study do not support this. Their results may be difficult to generalise to a psychology self-help population as it may be that SOC would be more predictive of

physical health outcomes, although chronic pain is seen as both a physical and psychological difficulty.

Moreover, the present results do not support the findings of Linley *et al.* (2007) who explored possible psychological changes of therapists in response to their therapeutic work with clients. They found that a strong SOC was predictive of positive psychological changes and less negative psychological changes including burnout and compassion fatigue. The authors, similar to Petrie and Azariah (1990), suggest that SOC could be used as a screening tool to predict psychological outcome of therapists in relation to their therapeutic work. These results are in fitting with other studies that found a strong SOC was protective against burnout of therapists (Kalimo *et al.*, 2003; Linley *et al.*, 2005). However, the results cannot be generalised to this study as they investigated a different study population (i.e. therapists rather than the patients).

The current findings do however, support research by Kivimäki, Feldt *et al.* (2000) who found that although, when employing cross sectional design, SOC was negatively associated with psychological and somatic health complaints it did not predict health, longitudinally, at the five-year follow-up. However, their results may be limited and unsurprising as their sample was drawn from the normal working population. This may have biased the results as people with health difficulties may have had to stop work before the follow-up period. Another explanation for the results may be that SOC is a dispositional measure of vulnerability to ill-health (Kivimäki *et al.*, 2000) but does not predict long-term health outcomes.

However, others question the divergent validity of SOC as a result of the large body of research demonstrating its strong negative associations with health especially mental health (Geyer, 1997; Kivimäki *et al.*, 2000). It has been suggested that the SOC scale may share similarity or overlap with questions relating to mental health scales, which would explain the relationships found (Geyer, 1997). For instance, Frenz *et al.* (1993) highlighted (along with others such as Holm *et al.*, 1988) that the

correlations between SOC and anxiety were similar in size to the internal consistency and test-retest values. Thus they suggest that SOC and trait anxiety may not be completely distinct constructs. Eriksson and Lindström (2006) also questioned whether the SOC scale and mental health scales are measuring the same phenomenon. This may explain the current study findings, as SOC may demonstrate an association with initial mental health due to the scales used to measure these two constructs sharing similarity in the questions asked. However, the correlation ($r = -0.58$) between SOC and anxiety was not so high as to indicate they were measuring the same phenomenon. In addition, Eriksson and Lindström (2006), from a systematic review of SOC studies, concluded that the strong correlations found between SOC and mental health were not so strong as to dismiss them with the remaining variance explained by other factors such as age, social support and education. Therefore, they also concluded they were not measuring the same construct. Cohen and Savaya (2003) also found after conducting confirmatory factor analysis and structural equation modelling that SOC and mental health were two distinct but correlated constructs.

Moreover, Feldt and colleagues (2007) highlight the conceptual and empirical overlap between SOC and Neuroticism when exploring its relationship with the five factor model of personality (i.e. Neuroticism, Extraversion, Openness to Experience, Conscientiousness and Agreeableness). From an ongoing longitudinal study of personality and social development they found that SOC was strongly negatively correlated with Neuroticism (-0.85) and a modest positive correlation with Extraversion, Openness, Conscientiousness and Agreeableness was found. The authors suggest that Neuroticism may be the reverse of SOC. However, these constructs are thought to be distinct as SOC is perceived to be a dispositional orientation to life whilst neuroticism is considered to be a basic personality trait. These findings further emphasise the need to explore the divergent validity of SOC as a result of its reported overlap with other constructs.

Coping style (problem-focused, emotion-focused and avoidant) was not found to be a predictor of outcome in the current study. In addition, contrary to other research conducted (Amirkhan & Greaves, 2003) it was not found to mediate a relationship between SOC and outcome. The results do not support Antonovsky's salutogenic theory, which proposed that SOC influences both an individual's coping ability and their health outcomes. He reported that people with weak SOC employ less effective coping strategies than those with strong SOC suggesting a differential selection of coping strategies dependent on level of SOC (1987). However, in fitting with Antonovsky's theory (1987), the present study found that those high in SOC used lower levels of avoidant coping, which has been linked with poorer health outcomes (Amirkhan, 1998; Billings & Moos, 1984; Compas *et al.*, 2001; Pakenham, 2002). In addition, of the SOC subscales only meaningfulness was found to be positively associated with emotion-focused coping and problem-focused coping. This result is in fitting with Antonovsky's theory (1987) that individuals with higher SOC are more likely to view stressors as meaningful and worthy of investment and are more

likely to employ problem-focused coping strategies. Problem-focused coping strategies have been considered as more effective as a result of their association with positive health outcomes. (Amirkhan, 1998; Cohen & Dekel, 2000; Compas *et al.*, 2001; Folkman & Lazarus, 1985). Moreover, the results support the findings of Kayal (2009) who found that higher SOC of therapists was associated with more use of problem-focused coping. However, the current study only found a significant association between problem-focused coping and the meaningfulness SOC subscale score not the total SOC score.

The present study also aimed to examine whether sense of coherence was positively associated with socioeconomic status, as measured by the deprivation index score. The results showed a significant association between SOC and socioeconomic status, with high levels of SOC associated with higher socio-economic status. Antonovsky proposed that unemployment, one of the main factors to influence socio-economic status, has a significant negative effect on someone's SOC. This claim was supported

by research studies exploring the effects of unemployment on SOC (Feldt *et al.*, 2000b; Feldt *et al.*, 2005; Hanse & Engström, 1999). This is proposed to be due to the loss of predictability regarding the future and meaningfulness attached to a work role (Antonovsky, 1987). However, this may also be the result of individuals with higher socio-economic status having the conditions (employment status, financial security, housing, social support) to develop general resistance resources that then foster the development of a strong SOC. In addition, this finding supports the limited number of studies that have explored the relationship between SOC and SES, as they too reported a positive association (Coward, 1996; George, 1993; Hood *et al.*, 1996). However, it should be highlighted that the current research finding was not indicative of a strong association between SOC and SES. It was hypothesised that SOC would be positively associated with age, which was supported by the finding that SOC increased with age. This finding does not support Antonovsky's theory as he proposed that SOC stabilises after the age of 30 and will only fluctuate temporarily by a maximum of 10% in response to negative life events (1987). However, it supports empirical studies that have investigated the stability of SOC and found it increases with age (Feldt *et al.*, 2003; Richardson *et al.*, 2007; Smith *et al.*, 2003; Volanen *et al.*, 2007). In addition, the authors of a recent systematic review of the SOC evidence base (1992-2003) concluded that SOC was found to increase with age (Eriksson & Lindström, 2005). Eriksson and Lindström (2005) propose that this may be due to a natural selection effect whereby people who are healthy live longer. However, they believe it is more likely that people with a strong SOC tend to stay healthy and thus when measuring people within the older age groups they tend to have strong SOC.

4.3. Limitations & suggestions for future research

The main limitation of the study was the small sample size. Therefore, the capacity to detect significant relationships including predictive power of the variables was limited and thus the results should be interpreted with caution (Shevlin & Miles, 2001). For instance, the small sample size may have increased the chance of a type II

error having occurred, with significant relationships not being identified due to insufficient statistical power (Pallant, 2007). The main difficulty with achieving the sample size required was the low return rate of post measures. This is common for naturalistic studies conducted in 'real-life' clinical settings as a result of participants dropping out of treatment (Clark *et al.*, 2009). However, the advantage of conducting the study in a naturalistic setting was that the results are more representative of real life effects and they provide information about the clinical application of SOC.

However, the problem of experiencing a low return rate was relevant for the current study with participants either not attending their previously scheduled last appointment or not contacting the self-help worker to arrange one. For instance, clients are asked if they require a further appointment and if they are unsure it is then left up to them to telephone to arrange another. Therefore, it was difficult to determine the number of participants who dropped out of treatment from those that did not want further appointments due to feeling better. The mean total SOC score for non-completers (pre data only) was slightly higher than for the completers (pre & post data) however, the difference was not statistically significant. One possibility is that participants with slightly higher SOC gained enough benefit from the one or two sessions they attended and thus did not arrange another. It may be that these participants only required reassurance that they were coping well with a potentially difficult situation. This would be in fitting with Antonovsky's theory (1987) that people with higher SOC cope more effectively compared to those with low SOC. However, future research is required to determine if individuals with higher SOC levels require fewer treatment sessions.

The study employed self-administered questionnaires, which have both advantages and disadvantages. Firstly, they reduce the risk of experimenter bias as the participant's own views are obtained (Barker *et al.*, 2002). Secondly, self-administered questionnaires enable large groups of participants to be measured

quickly, making them less expensive and time consuming than conducting structured interviews. However, the disadvantages are that they are reliant on the accuracy of the participant's report and on their understanding of the questions being asked. The researcher has no control over how the questionnaires are completed and thus questions may be missed or answered inaccurately (Barker *et al.*, 2002).

A main advantage of the study was the limited risk of an experimenter effect, as participants were never at any time in the study approached by or had contact with the experimenter. In addition, the possibility that results were affected due to participants completing measures under a time constraint was limited as they completed the majority of measures at home or after their last appointment in the clinic waiting room.

Other potential limitations relate to the recruitment and postal methods of the study. For instance, clients were first approached about the study via telephone and asked if they would like an information pack to be sent out. Participants who wished to take part were asked to bring their completed measures to their first appointment at least five days later. Telephone and postal contact have been found to produce lower rates of agreement to participate than face to face contact and have resulted in lower return rates (Coolican, 1999). Therefore, data collection in this study was reliant on individuals remembering to bring their measures to the clinic. However, advantages of this method were that clients had sufficient time to consider their participation in the study. In addition, they were not initially approached about the study in clinic when they may be anxious about starting treatment and feel more obliged to take part. Moreover, this method encouraged more honest answers as participants completed the initial measures in their own homes (Coolican, 1999). Future studies should consider how to overcome the difficulties of conducting research in 'real life' clinical settings such as time constraints and participant burden whilst ensuring the method applied may result in the best possible return rates.

One main advantage of the current study was its longitudinal design, measuring participants' severity of their psychological symptoms at two time points (pre and post intervention). This enabled SOC's possible predictive relationship with therapeutic outcome to be explored. In addition, this was the first study to explore a potential predictive relationship of SOC on therapeutic outcome of individuals with a variety of psychological difficulties in a psychology self-help service. Therefore, the research findings are important clinically adding to the research base regarding factors that may be helpful in predicting outcome and also investigating if SOC may be an important construct to examine in clinical practice.

The study design had taken into account previous SOC research criticisms regarding the lack of longitudinal designs. However, no follow-up period was employed, which would have enabled treatment gains to be followed over a longer period of time. Furthermore, to prevent further participant burden and as SOC has been considered to be a stable dispositional trait it was only measured at one time point (pre intervention). This may have limited the potential findings as no conclusions can be drawn regarding the stability of SOC and whether it may have been influenced by the self-help intervention. For instance, a one year follow-up study of patients treated for major depressive disorder found that SOC scores were low at baseline but had significantly increased for patients in the recovered group (Skäräster, 2005). In addition, the current study was unable to determine if participants SOC level was pre-morbidly low or whether it was negatively affected as a result of their psychological difficulties. Moreover, due to a lack of historical information it is unknown if participants SOC may have been affected by a negative life event. Also if SOC had been measured post intervention the criticism that SOC and mental health may not be distinct constructs could have been explored. However, in order to answer the research questions SOC was only required to be measured pre intervention. Consequently, further research is needed to determine if SOC can be influenced via psychological intervention and if this leads to long-term positive

physical and mental health outcomes. In addition, longitudinal studies are required to follow the development of SOC into adulthood to determine what factors may influence it and to determine causality, does SOC impact on health or vice-versa.

Moreover, mediation analysis was intended to be conducted to explore if coping mediated a relationship between SOC and outcome. However, instead hierarchical multiple regression was carried out as the conditions necessary to establish mediation were not met (refer to page 69). Mainly that no significant associations were found between SOC and outcome. Therefore, the original power calculation was based upon employing the planned mediation analysis (using two predictors at each stage) consequently, this impacted upon the power of the analysis actually performed (multiple regression) as five predictors were used. Using Green's formula (discussed on page 43) with five predictors ($50 + (8 \times 5) = 90$) to detect a medium effect, 90 participants were required. Therefore, as only 51 participants completed pre and post measures the study was under powered.

The lack of a significant association found between SOC and therapeutic outcome may have been the result of the study being under powered and also the result of a measurement phenomenon. For instance, from examining a snapshot of the study data the highest 15 SOC scoring participants presented with lower levels of severity of anxiety and depression (HADS). The majority scored within the normal-mild range. Of these participants five did not complete post data, possibly dropping out of treatment as a result of their difficulties improving very quickly. However, as these individuals were coming into the service already within the non-clinical range or just meeting the clinical criteria they had less improvement to make or that could be measured using the HADS than people with lower SOC and greater severity. Therefore, SOC may not have been found to predict therapeutic outcome as people with higher SOC may have dropped out before completing post measures. In addition, possibly due to a floor effect on the HADS their level of improvement may

not have been accurately measured. However, using a HADS change score of the pre and post measurement indicated that there was a significant association between higher SOC levels and greater improvement. One way to have investigated this potential problem with measurement further would have been to have undertaken a partial correlation. This would have enabled the relationship between SOC and outcome to have been explored whilst controlling for a possible confounding effect of level of severity.

A particular limitation of the SOC scale is that no cut-off scores were defined by Antonovsky (1987) to indicate what is considered to be high, medium or low SOC. Therefore, it is difficult to place individuals on the health/ease dis-ease continuum, not being clear what constitutes health promoting SOC (Eriksson & Lindström, 2005). However, Antonovsky (1993) published a table of normative data reporting the mean SOC scores found in research for both versions of the scale to enable comparisons to be made. As mentioned previously the current sample's mean total SOC score was considerably lower, when compared with the normative data from other samples. However, it is important to note that no sample with a primary difficulty of mental health problems was included in Antonovsky's table. In addition, the studies reported were conducted in the USA and Israel thus it is difficult to compare their findings to the current sample. Moreover, SOC scores have been reported as being lower in patient groups when compared with non-patient groups (Frenz *et al.*, 1993). Other studies exploring mental health problems such as depression also found low mean SOC scores similar to the current study (Carstens & Spangenberg, 1997; Lundberg *et al.*, 2009). The mean total SOC score was initially unexpected in the current sample for clients attending a mild-moderate psychology self-help service. However, on further inspection of the severity of participants presenting problems the majority fell within the moderate to severe clinical range which may explain the lower mean SOC score. Reliability analysis of the SOC scale within the current sample supported its use with the study population (see Chapter 2).

However, to aid further SOC research it would be helpful if a normative table could be developed relating to SOC studies undertaken with mental health populations.

The current study provides further evidence that the SOC scale has been found to be a reliable and valid measure (see reliability analysis Chapter 2) in many different cultures (Eriksson & Lindström, 2005) including within a Scottish population. The current study findings provide information regarding the level of SOC within a Scottish population with mental health difficulties.

The current research, along with other studies (Amirkhan & Greaves, 2003; Cohen & Dekel, 2000), interpreted Antonovsky's reports that people with strong SOC employ more effective coping as referring to the use of more problem-focused coping. This was based on the traditional coping literature, which found problem-focused coping to be more effective however, recent literature has demonstrated emotion-focused coping to a lesser degree has been associated with positive health outcomes also (Amirkhan, 1998; Billings & Moos, 1984; Compas *et al.*, 2001; Pakenham, 2002; Vedhara *et al.*, 2001). However, Antonovsky does not make this specific claim explaining that people with strong SOC will adapt to the stressor using the most appropriate coping strategies. Based on his writing and recent coping research it may be that effective coping is the ability to employ different coping strategies that are appropriate for the particular situation. For instance, Cooper *et al.* (2007), contrary to their hypothesis, found that the greater use of emotion-focused coping by caregivers of individuals with Alzheimer's disease was protective against them experiencing greater anxiety one year later. However, unexpectedly the use of problem-focused coping was not protective but was associated with greater anxiety levels. Uncertainty therefore, remains regarding the coping style of people with high and low SOC and this continues to be an area for future research.

Another limitation of the study was the use of an area based measure of deprivation to investigate socio-economic status. A criticism of area based measures is their

broader focus, as everyone within the particular area is categorised as having the same level of deprivation, which may not be the case. For instance, there may be a mixture of deprived and less deprived households in the area. However, with the SIMD09 this has been addressed by making the geographical areas smaller as it is more likely that the similarity of the people living there will be greater (Allan & Bruce, 2007). An individual based measure was also intended to be employed to provide a more accurate investigation of socio-economic status. However, the in-depth level of information required from participants to employ an individual based measure was not justified as this was not a primary hypothesis. Therefore, the results only provide an indication of an individual's socio-economic status based on area deprivation level. Further discussion of why an area-based measure was employed in the study is reported in Chapter 2.

4.4. Clinical relevance

Clinical psychology services, including guided self-help, are under pressure from a political and user perspective to meet increased demand for access to psychological therapies. This demand has stemmed from the increasing evidence base supporting psychological treatments and politically from the limitations of relying heavily on a pathogenic approach (Wells, in press) For instance, the high costs of prescribing antidepressant medications. Moreover, government health policies in the last ten years have placed emphasis on health promotion and improvement of mental health within Scotland. Therefore, more interest has been placed on investigating factors that promote or foster positive mental health. This is in fitting with positive psychology and health psychology approaches.

In addition, to meet demand within psychology services a stepped/matched care model has been proposed with self-help services pivotal in delivering the lower intensity treatments. However, there has been concern that patients may become stuck at the lower intensity level without being moved onto higher intensity therapies

(Farrand *et al.*, 2008). Therefore, importance has been placed on conducting research to identify factors that can predict treatment response or effectiveness (Newman, 2000). The current study contributed to this research area by investigating if SOC, health promoting personality construct, can predict treatment response or outcome in a self-help service. Although SOC was not found to have a predictive relationship with treatment outcome there were many limitations of the study, which may have affected the detection of a significant relationship. Therefore, the study highlighted the need for similar research to be conducted with the possibility that SOC may be able to identify which individuals would benefit from a self-help approach. Conversely, it may be able to identify individuals that may require more intensive therapy, which would aid the effectiveness of treatment. In addition, SOC should be considered clinically due to its strong negative association found with mental health and avoidant coping. Therefore, low SOC can be considered as a potential risk factor as individuals with low SOC are vulnerable to developing mental health difficulties. Thus “SOC could be used to predict health care needs in major life changes and stressors” (Elovainio & Kivimäki, 2000, p.134). A major implication of this finding is to recommend clinical interventions to strengthen SOC to promote positive mental health and effective coping. For instance, focusing specifically on increasing individuals’ sense of meaningfulness, manageability and comprehensibility of their current circumstances. Although this is incorporated to a degree in a lot of therapeutic approaches devoting more time to explicitly enhance these components of SOC would be beneficial. The current study suggests that SOC can be influenced as it was found to vary across the lifespan, increasing with age.

Therefore, this research along with other studies previously discussed suggest that SOC may be more of a trait rather than a state concept due its lack of stability and as a result may be positively influenced possibly through clinical interventions. This further strengthens the health and positive psychology research base by highlighting a possible way to positively influence someone’s physical and mental health and ways of coping.

An interesting finding also pertains to the level of severity of clients entering the service as the majority fell within the moderate-severe clinical range. This is unexpected for a mild-moderate self-help service and may relate to a number of issues. Firstly, clients may be referred inappropriately as a means of accessing services quickly due to no waiting list for self-help which may result in clients psychological needs not being appropriately met. However, an alternative explanation is that clients are being seen at a time of crisis and are reporting a high level of reactive distress, possibly lowering SOC, with distress remitting quickly during a brief intervention. Therefore, rather than only being symptom focused it could be valuable to measure outcome in terms of SOC as short-term interventions may be able to increase this as well as SOC predicting further psychiatric difficulties.

4.5. Conclusion

The current study found that SOC was not a predictor of therapeutic outcome of clients attending a psychology self-help service. However, considering the study limitations and previous research demonstrating SOC's predictive value on therapeutic outcome further investigation is warranted. For instance, SOC may have clinical relevance in identifying individuals' responsiveness to different modes of therapy and allocating them appropriately to aid treatment effectiveness. An important finding was SOC's significant association with mental health difficulties such as anxiety and depression, in support of previous research. In addition, weaker SOC was associated with greater use of avoidant coping, which has been linked with a variety of psychological difficulties. However, it is important to determine the causality of SOC's relationship with mental health because if SOC can be influenced via psychological intervention this may promote positive mental health and effective coping. SOC is therefore, a valuable health promoting personality construct that has an important clinical application.

5. References

- Allan, A. & Bruce, J. (2007). *Deprivation in Dumfries and Galloway*. NHS Dumfries and Galloway. Retrieved 20/11/09 from <http://www.nhsdg.scot.nhs.uk/dumfries/files/Deprivation%20Report%20final.pdf>
- Almedom, A. (2005). Resilience, hardiness, sense of coherence, and posttraumatic growth: All paths leading to “Light at the end of the tunnel”? *Journal of Loss and Trauma*, 10, 253-265.
- Amirkhan, J.H. (1998). Attributions as predictors of coping distress. *Personality and Social Psychology Bulletin*, 24, 1006-1008.
- Amirkhan, J.H. & Greaves, H. (2003). Sense of coherence and stress: The mechanics of a healthy disposition. *Psychology and Health*, 18(1), 31-62.
- Andersen, S. & Berg, J.E. (2001). The use of a sense of coherence test to predict drop-out and mortality after residential treatment of substance abuse. *Addiction Research & Theory*, 9(3), 239-251.
- Anderson, K.H. (1994). Family sense of coherence: As collective and consensus in relation to family quality of life after illness diagnosis. In H.I McCubbin, E.A. Thompson, A.I. Thompson, & J.E. Former (Eds.). *Sense of coherence and resiliency: Stress coping and health* (pp. 169-188). Madison, WI: University of Wisconsin Publishers.
- Anderson, L., Lewis, G., Araya, R., Elgie, R., Harrison, G., Proudfoot, J. *et al.* (2005). Self-help books for depression: How can practitioners and patients make the right choice? *The British Journal of General Practice*, 55(514), 387-392.
- Antonovsky, A. (1979). *Health, stress and coping*, San Francisco: Jossey-Bass.
- Antonovsky, A. (1987). *Unraveling the mystery of health. how people manage stress and stay well*. San Francisco: Jossey-Bass.
- Antonovsky, A. (1990). A somewhat personal odyssey in studying the stress process. *Stress Medicine*, 6(2), 71-80.
- Antonovsky, A. (1991). The structural sources of salutogenic strengths. In C.L. Cooper & R. Payne (Eds.), *Personality and stress: Individual differences in the stress process* (pp.67-104). New York: Wiley.
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science & Medicine*, 36(6), 725-733.

- Antonovsky, A. (1995). The moral and the healthy: Identical, overlapping or orthogonal? *Israel Journal of Psychiatry and Related Sciences*, 32, 5-13.
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International*, 11(1), 11-18.
- Antonovsky, H. & Sagy, S. (1986). The development of a sense of coherence and its impact on responses to stress situations. *The Journal of Social Psychology*, 126(2)213-225.
- Bahrs, O., Heim, S., Kalitzkus, V., Matthiessen, P., Meister, P. & Müller, H. (2003). *Salutogenesis in general practice: How to use the potential of doctor-patient-communication to promote health*. Paper presented at the second conference on Making Sense of: Health, Illness and Disease. Oxford: St. Hilda's College.
- Bailey N, Flint J, Goodlad R, Shucksmith M, Fitzpatrick S & Pryce G (2003). 'Measuring Deprivation in Scotland: Developing a Long-Term Strategy – Final Report' *Scottish Centre for Research on Social Justice*. [Electronic Version] Retrieved 15/11/09 from www.scotland.gov.uk/Publications/2003/09/18197/26536.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.
- Barker, C., Pistrang, N. & Elliott, R. (2002). *Research Methods in Clinical Psychology: An Introduction for Students and Practitioners* (2nd Ed.). England: Wiley.
- Barkham, M., Evans, C., McGrath, F.M., Mellor-Clark, J., Milne, D. & Graeme, J.C. (1998). The rationale for developing and implementing core outcome batteries for routine use in service settings and psychotherapy outcome research. *Journal of Mental Health*, 7(1), 35-47.
- Barkham, M., Shapiro, D. A., Hardy, G. E. & Rees, A. (1999). Psychotherapy in two-plus-one sessions: Outcomes of a randomized controlled trial of cognitive-behavioral and psychodynamic-interpersonal therapy for subsyndromal depression. *Journal of Consulting and Clinical Psychology*, 67(2), 201-211.
- Baron, R.M. & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Beckingham, A.C. & Watt, S. (1995). Daring to grow old: Lessons in healthy aging and employment. *Educational Gerontology*, 21, 479-495.
- Bengtsson-Tops, A. & Hansson, L. (2001). The validity of Antonovsky's sense of coherence measure in a sample of schizophrenic patients living in the community. *Journal of Advanced Nursing*, 14, 258-264.

- Bernstein, J. & Carmel, S. (1987). Trait anxiety and the sense of coherence. *Psychological Reports*, 60, 1000.
- Billings, A.G., & Moos, R.H. (1984). Coping, stress, and social resources among adults with unipolar depression. *Journal of Personality and Social Psychology*, 46(4), 877-891.
- Bjelland, I., Dahl, A.A., Haug, T.T. & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale; an updated review. *Journal of Psychiatric Research*, 52, 69-77.
- Bower, P. & Gillbody, S. (2005). Stepped care in psychological therapies: access, effectiveness, and efficiency. *British Journal of Psychiatry*, 186, 11-17.
- Bower, P., Richards, D. & Lovell, K. (2001). The clinical and cost-effectiveness of self-help treatments for anxiety and depressive disorders in primary care: a systematic review. *British Journal of General Practice*, 51, 838-845.
- Breslin, F.C., Hepburn, C.G., Ibrahim, S. & Cole, D. (2006). Understanding stability and change in psychological distress and sense of coherence: A four-year prospective Study 1. *Journal of Applied Social Psychology*, 36(1), 1-21.
- Briggs, S. R. & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality*, 54, 106-48.
- Callaghan, L.F. & Pincus, T. (1995). The sense of coherence scale in patients with rheumatoid arthritis. *Arthritis Care and Research*, 8, 28-35.
- Carmel, S. & Bernstein, J. (1990). Trait anxiety, sense of coherence and medical school stressors: Observations at three stages. *Anxiety Research*, 3, 51-60.
- Carstens, J.A. & Spangenberg, J. J. (1997). Major depression: A breakdown in sense of coherence? *Psychological Reports*, 80(3 Pt 2), 1211-1220.
- Carver, C.S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioural Medicine*, 4, 92-100.
- Carver, C.S., Scheier, M.F. & Weintraub, J.K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.
- Chamberlain, K. & Zika, S. (1990). Stability and change in subjective well-being over short time periods. *Social Indicator Research*, (26), 101-117.

- Clark, D.M., Layard, R., Smithies, R., Richards, D.A., Suckling, R., & Wright, B. (2009). Improving access to psychological therapy: Initial evaluation of two UK demonstration sites. *Behaviour Research and Therapy*, 47(11), 910-920.
- Cochrane, V.M. & Slade, P. (1999). Appraisal and coping in adults with cleft lip: Association with well-being and social anxiety. *British Journal of Medical Psychology*, 72(4), 485-503.
- Coe, R.M., Romeis, J.C., Tang, B.X. & Wolinsky, F.D. (1990). Correlates of a measure of coping in older veterans: A preliminary report *Journal of Community Health*, 15(5), 287-296.
- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences*. San Diego, CA: Academic Press.
- Cohen, J. (1992). A Power Primer: Quantative methods in psychology. *Psychological Bulletin*, 112(1), 155-159.
- Cohen, O., & Dekel, R. (2000). Sense of coherence, ways of coping and well being of married and divorced mothers. *Contemporary Family Therapy*, 22(4), 467-486.
- Cohen, O. & Savaya, R. (2003). Sense of coherence and adjustment to divorce among Muslim Arab citizens of Israel. *European Journal of Personality*, 17, 309-326.
- Compas, B.E., Connor-Smith, J.K., Saltzman, H., Thomsen, A.H. & Wadsworth, M.E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin*, 127(1), 87-127.
- Connor-Smith, J.K. & Flachsbart, C. (2007). Relations between personality and coping: A meta-analysis. *Journal of Personality and Social Psychology*, 93(6), 1080-1107.
- Coolican, H. (1999). *Research methods and statistics in psychology* (3rd Ed.). Bristol: Hodder & Stoughton.
- Coolidge, F.L., Segal, D.L., Hook, J.N. & Stewart, S. (2000). Personality disorders and coping among anxious older adults. *Journal of Anxiety Disorders*, 14(2), 157-172.
- Cooper, C., Balamurali, T. & Livingston, G. (2007). A systematic review of the prevalence and associates of anxiety in carers of people with dementia. *International Psychogeriatrics*, 28, 1-21.

- Cooper, C., Katona, C. & Livingston, G. (2008). Validity and reliability of the brief COPE in carers of people with dementia: The LASER-AD study. *The Journal of Nervous and Mental Disease*, 196(11), 838-843.
- Cooper, C., Katona, C., Orrell, M. & Livingston, G. (2006). Coping strategies and anxiety in caregivers of people with Alzheimer's disease: The LASER-AD study. *Journal of Affective Disorders*, 90(1), 15-20.
- Cooper, C., Katona, C., Orrell, M. & Livingston, G. (2008). Coping strategies, anxiety and depression in caregivers of people with Alzheimer's disease. *International Journal of Geriatric Psychiatry*, 23(9), 929-936.
- Coward, D.D. (1996). Self-transcendence and correlated in a healthy population. *Nursing Research*, 34(2), 115-121.
- Crespo, M., Lopez, J. & Zarit, S.H. (2005). Depression and anxiety in primary caregivers: a comparative study of caregivers of demented and nondemented older persons. *International Journal of Geriatric Psychiatry*, 20, 591-592.
- Department of Health (2007). *Improving Access to Psychological Therapies: Specification for the Commissioner-led Pathfinder Programme*. London: Department of Health.
- Driori, J., Florian, V. & Kravitz, S. (1991). Sense of coherence: Sociodemographic characteristics and the perception of mental-physical health. *Psychology, B*, 119-125.
- Elovainio, M., & Kivimäki, M. (2000). Sense of coherence and social support - resources for subjective well-being and health of the aged in Finland *International Journal of Social Welfare*, 9(2), 128-135.
- Eriksson, M. & Lindström, B. (2005). Validity of Antonovsky's sense of coherence scale: A systematic review. *Journal of Epidemiology and Community Health*, 59(6), 460-466.
- Eriksson, M. & Lindström, B. (2006). Antonovsky's sense of coherence scale and the relation with health: A systematic review. *Journal of Epidemiology & Community Health*, 60(5), 376-81.
- Eriksson, M. & Lindström, B. (2007). Antonovsky's sense of coherence scale and its relation with quality of life: A systematic review. *Journal of Epidemiology and Community Health*, 61(11), 938-944.

- Eriksson, M., Lindström, B. & Lilja, J. (2007). A sense of coherence and health. salutogenesis in a societal context: Åland, a special case? *Journal of Epidemiology & Community Health*, 61(8), 684-688.
- Farrand, P., Confue, P., Byng, R. & Shaw, S. (2008). Guided self-help supported by paraprofessional mental health workers: An uncontrolled before--after cohort study. *Health & Social Care in the Community*, 17(1), 9-17.
- Feigin, R. & Sapir, A. (2005). The relationship between sense of coherence and attribution of responsibility for problems and their solutions, and cessation of substance abuse. *Journal of Psychoactive Drugs*, 37, 63-74.
- Feinstein, A. R. (1987). *Global indexes and scales*. In Clinimetrics. New Haven (CT): Yale University Press, 91-103.
- Feldt, T., Kinnunen, U. & Mauno, S. (2000). A mediational model of sense of coherence in the work context: a one-year follow-up study. *Journal of Organizational Behavior*, 21, 461-476.
- Feldt, T., Leskinen, E. & Kinnunen, U. (2005). Structural invariance and stability of sense of coherence: A longitudinal analysis of two groups with different employment experiences. *Work & Stress*, 19(1), 68-83.
- Feldt, T., Leskinen, E., Kinnunen, U. & Mauno, S. (2000). Longitudinal factor analysis models in the assessment of the stability of sense of coherence. *Personality and Individual Differences*, 28(2), 239-257.
- Feldt, T., Leskinen, E., Kinnunen, U., & Ruoppila, I. (2003). The stability of sense of coherence: Comparing two age groups in a 5-year follow-up study. *Personality and Individual Differences*, 35(5), 1151-1165.
- Feldt, T., Lintula, H., Suominen, S., Koskenvuo, M., Vahtera, J. & Kivimäki, M. (2007). Structural validity and temporal stability of the 13-item sense of coherence scale: Prospective evidence from the population-based HeSSup study. *International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 16(3), 483-493.
- Feldt, T. & Rasku, A. (1998). The structure of Antonovsky's Orientation to Life Questionnaire. *Personality and Individual Differences*, 25, 505-516.
- Feldt, T., Riitta-Leena, M., Kinnunen, U. & Pulkkinen, L. (2007). Sense of Coherence and Five-Factor Approach to Personality. Conceptual Relationships. *European Psychologist*, 12(3), 165-172.
- Field, A. (2005). *Discovering statistics using SPSS: and sex and drugs and rock 'n' roll* (2nd Ed.). London: Sage.

- Flannery, R.B. Jr. & Flannery, G.J. (1990). Sense of coherence, life stress, and psychological distress: A prospective methodological inquiry. *Journal of Clinical Psychology*, 46(4), 415-420.
- Flannery, R.B.J., Perry, J.C., Penk, W.E. & Flannery, G.J. (1994). Validating Antonovsky's sense of coherence scale. *Journal of Clinical Psychology*, 50(4), 575-577.
- Fleishman, J.A. & Fogel, B. (1994). Coping and depressive symptoms among people with AIDS. *Health Psychology*, 13(2), 156-169.
- Fok, S.K., Chair, S.Y. & Lopez, V. (2005). Sense of coherence, coping and quality of life following a critical illness. *Journal of Advanced Nursing*, 49(2), 173-181.
- Folkman, S. & Lazarus, R. S. (1985). 'If it changes it might be a process: Study of emotion and coping during three stages of a college examination'. *Journal of Personality and Social Psychology*, 48, 150-170.
- Freeman, R.M. (2007). What's a 'cure'? Patient-centred outcomes of treatments for stress urinary continence. *International Urogynecology Journal*, 18, 13-18.
- Frenz, A.W., Carey, M.P. & Jorgensen, R. S. (1993). Psychometric evaluation of Antonovsky's sense of coherence scale. *Psychological Assessment*, 5(2), 145-153.
- Gallagher, T.J., Wagenfeld, M.O., Baro, F. & Haepers, K. (1994). Sense of coherence, coping and caregiver role overload. *Social Science Medicine*, 39, 1615-1622.
- Gana, K. & Garnier, S. (2001). Latent structure of the sense of coherence scale in a French sample. *Personality and Individual Differences*, 31, 1079-1090.
- Gellatly, J., Bower, P., Hennessy, S., Richards, D., Gilbody, S. & Lovell, K. (2007). What makes self-help interventions effective in the management of depressive symptoms? Meta-analysis and meta-regression. *Psychological Medicine*, 37(9), 1217-1228.
- George, V.D. (1993). Field-workers' sense of coherence and perception of risk when making home visits. *Public Health Nursing*, 13, 244-252.
- Geyer, S. (1997). Some conceptual considerations on the sense of coherence. *Social Science & Medicine*, 44(12), 1771-1779.
- Gill, T.M. & Feinstein, A.R. (1994). A critical appraisal of the quality of quality-of-life measurements. *Journal of the American Medical Association*, 272, 619-626.

- Gould, R. & Clum, G.A. (1993). A meta-analysis of self-help treatment approaches. *Clinical Psychology Review*, 13(2), 169-186.
- Green, S.B. (1991). How many subjects does it take to do a regression analysis? *Multivariate Behavioural Research*, 26(3), 499-450.
- Griffiths, C. A. (2009). Sense of coherence and mental health rehabilitation. *Clinical Rehabilitation*, 23, 72-78.
- Guy, W. (1976). *ECDEU assessment manual for psychopharmacology*. Rockville (MD): National Institute of Mental Health, US Department of Health, Education and Welfare, 218-222.
- Hakanen, J.J., Feldt, T. & Leskinen, E. (2007). Change and stability of sense of coherence in adulthood: Longitudinal evidence from the healthy child study. *Journal of Research in Personality*, 41(3), 602-617.
- Hanse, J. J. & Engström, T. (1999). Sense of coherence and ill health among the unemployed and re-employed after closure of an assembly plant. *Work and stress*, 13, 204-222.
- Hart, K.E., Hittner, J.B. & Paras, K.C. (1991). Sense of coherence, trait anxiety, and the perceived availability of social support. *Journal of Research in Personality*, 25(2), 137-145.
- Hawley, D.J., Wolfe, F. & Cathey, M.A. (1992). The sense of coherence questionnaire in patients with rheumatic disorders *The Journal of Rheumatology*, 19(12), 1912-1918.
- Herrmann, C. (1997). International experiences with the Hospital Anxiety and Depression Scale—a review of validation data and clinical results. *Journal of Psychosomatic Research*, 42, 17-41.
- Hickie, I.B., Andrews, G. & Davenport, T.A. (2002). Measuring outcomes in patients with depression or anxiety: an essential part of clinical practice. *Medical Journal of Australia*, 177, 205-207.
- Holm, J.E., Ehde, D., Lambert, K. J., Dix, A. & Thompson, J. (1988). Sense of coherence: psychometric properties. *Association for the Advancement of Behaviour Therapy Meeting*. New York.
- Hood, S.C., Beaudet, M.P. & Catlin, G. (1996). A healthy out-look. *Health Reports*, 7(4), 25-32.

- Ing, J.D. & Reutter, L. (2003). Socioeconomic status, sense of coherence and health in canadian women. *Canadian Journal of Public Health. Revue Canadienne De Santé Publique*, 94(3), 224-228.
- Information Services Division (2004) *Deprivation and Urban Rural Measurements in ISD, Summary Report*. [Electronic Version] Retrieved 20/11/09 from http://www.isdscotland.org/isd/files/Measuring_deprivation_in_ISD_v3.pdf.
- Johnson, D. H. & Gelso C. J. (1990). The effectiveness of time limits in counselling and psychotherapy: a critical review. *Counsel Psychologist*, 9, 70-83.
- Kalimo, R., Pahkin, K., Mutanen, P. & Topipinen-Tanner, S. (2003). Staying well or burning out at work: Work characteristics and personal resources as long-term predictors. *Work & Stress*, 17(2), 109-122.
- Kayal, H. (2009). *Exploring the sense of coherence and coping strategies of therapists and their impact on working alliance and therapeutic outcome*. Unpublished doctoral thesis, Tavistock, University of Essex.
- Keyes, C. L. (2007). Promoting and protecting mental health as flourishing: A complementary strategy for improving national mental health. *The American Psychologist*, 62(2), 95-108.
- Kivimäki, M., Feldt, T., Vahtera, J. & Nurmi, J. (2000). Sense of coherence and health: Evidence from two cross-lagged longitudinal samples. *Social Science & Medicine*, 50(4), 583-597.
- Kleinman, A. (1995). *Writing at the margin. discourse between anthropology and medicine*. Berkeley: University of California Press.
- Kline, P. (1999). *The handbook of psychological testing* (2nd Edition). London: Routledge.
- Kobasa, S.C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology*, 37(1), 1-11.
- Kouvonen, A.M, Vaananen, A., Vahtera, J., Heponiemi, T., Koskinen, A. & Cox, S.J, Kivimäki, M. (2010). Sense of coherence and psychiatric morbidity: A 19-year register-based prospective study *Journal of Epidemiology & Community Health*, 64(3), 255-261.
- Lalonde, M. (1974). *A new perspective on the health of Canadians*. Ottawa: Information Canada.

- Langeland, E., Wahl, A.K., Kristoffersen, K. & Hanestad, B.R. (2007). Promoting coping: Salutogenesis among people with mental health problems. *Issues in Mental Health Nursing*, 28(3), 275-295.
- Languis, A. & Björvell, H. (1996). Salutogenic model and use of the Sense of coherence scale in nursing research – a methodological report. *Vård I Norden*, 16, 28-32.
- Larsson, G. & Kallenberg, K. (1996). Sense of coherence, socioeconomic conditions and health. Interrelationships in a nation-wide Swedish sample. *European Journal of Public Health*, 6(3), 175-180.
- Lazarus, R. S. & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.
- Lehtinen, V., Sohlman, B., Nummelin, T. *et al.*, (2005). The estimated incidence of depressive disorder and its determinants in the Finnish ODIN sample. *Social Psychiatry and Psychiatric Epidemiology*, 40, 778-784.
- Lindström, B. & Eriksson, M. (2005). Salutogenesis. *Journal of Epidemiology & Community Health*, 59(6), 440-442.
- Lindström, B. & Eriksson, M. (2006). Contextualizing salutogenesis and antonovsky in public health development. *Health Promotion International*, 21(3), 238-244.
- Linley, P. A. & Joseph, S. (2007). Therapy work and therapist's positive and negative well-being. *Journal of Social and Clinical Psychology*, 26(3), 385-403.
- Linley, P. A., Joseph, S. & Loumidis, K. (2005). Trauma work, sense of coherence, and positive and negative changes in therapists. *Psychotherapy and Psychosomatics*, 74(3), 185-188.
- Linn, J.G., Lewis, F.M., Cain, V.A. & Kimbrough, G.A. (1993). HIV-illness, social support, sense of coherence, and psychosocial well-being in a sample of help-seeking adults. *AIDS Education and Prevention*, 5(3), 254-262.
- Lisspers, J., Nygren, A. & Söderman, E. (1997). Hospital Anxiety and Depression Scale (HAD): some psychometric data for a Swedish sample. *Acta Psychiatrica Scandinavica*, 96, 281-286.
- Lovell, K., Bower, P., Richards, D., Barkham, M., Sibbald, B., Roberts, C. *et al.* (2008). Developing guided self-help for depression using the medical research council complex interventions framework: A description of the modelling phase and results of an exploratory randomised controlled trial. *BMC Psychiatry*, 8(91), 361-367.

- Lovell, K., Richards, D.A. & Bower, P. (2003). Improving access to primary mental health care: uncontrolled evaluation of a pilot self-help clinic. *British Journal of General Practice*, 53, 133-135.
- Lundberg, B., Hansson, L., Wentz, E. & Bjorkman, T. (2009). Are stigma experiences among persons with mental illness, related to perceptions of self-esteem, empowerment and sense of coherence? *Journal of Psychiatric and Mental Health Nursing*, 16(6), 516-522.
- Margalit, M. & Eysenck, S. (1990). Prediction of coherence in adolescence: Gender differences in social skills, personality, and family climate. *Journal of Research in Personality*, 24(4), 510-521.
- Marrs, R.W. (1995). A meta-analysis of bibliotherapy studies. *American Journal of Community Psychology*, 23(6), 843-870.
- McKendree-Smith, N.L., Floyd, M. & Scogin, F.R. (2003). Self-administered treatments for depression: A review. *Journal of Clinical Psychology*, 59(3), 275-288.
- McSherry, W.C. & Holm, J.E. (1994). Sense of coherence: Its effects on psychological and physiological processes prior to, during, and after a stressful situation. *Journal of Clinical Psychology*, 50(4), 476-487.
- Mead, N., MacDonald, W., Bower, P., Lovell, K., Richards, D., Roberts, C. *et al.* (2005). The clinical effectiveness of guided self-help versus waiting-list control in the management of anxiety and depression: A randomized controlled trial. *Psychological Medicine*, 35(11), 1633-1643.
- Miles, J. & Shevlin, M. (2001). *Applying regression and correlation: A guide for students and researchers*. London: Sage.
- National Collaborating Centre for Mental Health (2005). Management of depression in primary and secondary care (National Clinical Practice Guideline 23). Retrieved 19/01/10 from <http://www.nice.org.uk/page.aspx?o=235213> National Institute for Clinical Excellence.
- Newman, M.G. (2000). Recommendations for a cost offset model of psychotherapy allocation using generalised anxiety disorder as an example. *Journal of Consulting and Clinical Psychology*, 68, 549-555.
- Newman, M.G., Erickson, T. & Przeworski, A., Dzus, E. (2003). Self-help and minimal-contact therapies for anxiety disorders: Is human contact necessary for therapeutic efficacy? *Journal of Clinical Psychology*, 59(3), 251-274.

- NHS Health Scotland (2007). *Background and Policy Context*. [Electronic Version]. Retrieved 22/04/10 from <http://www.healthscotland.com/mental-health-background.aspx>
- NICE (2004a). *Depression: Management of Depression in primary and secondary care (clinical guide 23)*. London: National Institute for Clinical Excellence.
- NICE (2004b). *Anxiety: Management of anxiety (panic disorder, with and without agoraphobia, and generalised anxiety disorder) in adults in primary, secondary and community care (clinical guideline 26)*. London, UK: National Institute for Clinical Excellence.
- Nilsson, B., Holmgren, L. & Westman, G. (2000). Sense of coherence in different stages of health and disease in northern Sweden: gender and psychosocial differences. *Scandinavian Journal of Primary Health Care*, 18, 14-20.
- Pakenham, K. (2002). Development of a measure of coping with multiple sclerosis caregiving. *Psychology and Health*, 17(1), 97-118.
- Pallant, J. (2007). *SPSS Survival Manual: A step-by-step guide to data analysis using SPSS version 15* (3rd Ed.). Berkshire: Open University Press.
- Pallant, J.F. & Lae, L. (2002). Sense of coherence, well-being, coping and personality factors: Further evaluation of the sense of coherence scale. *Personality and Individual Differences*, 33(1), 39-48.
- Pandina, G.J., Revicki, D.A., Kleinman, L., Turkoz, I., Jasmanda, H. W. & Kujawa, M.J. *et al.*, (2009). Patient-rated troubling symptoms of depression instrument results correlate with traditional clinician-and patient-rated measures: A secondary analysis of a randomised, double-blind, placebo-controlled trial. *Journal of Affective Disorders*, 118, 139-146.
- Pearlin, L.I. & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, 19(1), 2.
- Petrie, K. & Azariah, R. (1990). Health-promoting variables as predictors of response to a brief pain management program. *The Clinical Journal of Pain*, 6(1), 43-46.
- Richards, D.A., Lovell, K. & McEvoy, P. (2003). Access and effectiveness in psychological therapies: Self-help as a routine health technology. *Health and Social Care in the Community*, 11(2), 175-182.
- Richardson, C.G., Ratner, P.A. & Zumbo, B.D. (2007). A test of the age-based measurement invariance and temporal stability of Antonovsky's sense of coherence scale. *Educational and Psychological Measurement*, 67(4), 679-696.

- Richards, D., Richards, A., Barkham, M., Cahill, J. & Williams, C. (2002). PHASE: A 'health technology' approach to psychological treatment in primary mental health care. *Primary Health Care Research and Development*, 3(3), 159-168.
- Ristkari, T., Sourander, A., Ronning, J. & Helenius, H. (2006). Self-reported psychopathology, adaptive functioning and sense of coherence, and psychiatric diagnosis among young men- A population-based study. *Social Psychiatry and Psychiatric Epidemiology*, 41(7), 523-531.
- Runkewitz, K., Kirchmann, H. & Strauss, B. (2006). Anxiety and depression in primary care patients: predictors of symptom severity and developmental correlates. *Journal of Psychosomatic Research*, 60, 445-453.
- Rush, A.J., Trivedi, M.H., Carmody, T.J., Ibrahim, H.M., Markowitz, J.C. & Keitner, G.I. *et al.* (2005). Self-reported depressive symptom measures: sensitivity to detecting change in a randomised, controlled trial of chronically depressed, nonpsychotic outpatients. *Neuropsychopharmacology*, 30, 405-416.
- Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry*, 147, 598-611.
- Schnyder, U., Büchi, S., Sensky, T. & Klaghofer, R. (2000). Antonovsky's sense of coherence: Trait or state? *Psychotherapy and Psychosomatics*, 9(6), 296-302.
- Schumacher, J., Wilz, G., Gunzelmann, T. & Brahler, E. (2000). Die sense of coherence scale von Antonovsky. *Psychother Psychosom Med Psychol*, 50, 472-82.
- Scogin, F., Hanson, A. & Welsh, D. (2003). Self-administered treatment in stepped-care models of depression treatment. *Journal of Clinical Psychology*, 59, 341-349.
- Scottish Executive (2003). *National Programme for Improving Mental Health and Well-Being: Action Plan 2003-2006*. Edinburgh: Scottish Executive.
- Scottish Executive (2006). *Delivering for Mental Health*. [Electronic Version]. Retrieved 15/01/10 from <http://www.scotland.gov.uk/Publications/2006/11/30164829/0>.
- Scottish Government (2008). *Mental Health in Scotland: A Guide to delivering evidence-based Psychological Therapies in Scotland*. [Electronic Version] Retrieved 19/01/10 from <http://www.scotland.gov.uk/Topics/Health/mental-health/servicespolicy/matrixfeb2009>.
- Scottish Government (2009). *Scottish Index of Multiple Deprivation (SIMD) General Report*. Edinburgh: Scottish Government.

- Skärsäter, I., Langius, A., Agren, H., Haggstrom, L. & Dencker, K. (2005). Sense of coherence and social support in relation to recovery in first-episode patients with major depression: A one-year prospective study. *International Journal of Mental Health Nursing*, 14(4), 258-264.
- Smith, P.M., Breslin, F.C. & Beaton, D.E. (2003). Questioning the stability of sense of coherence: The impact of socio-economic status and working conditions in the Canadian population. *Social Psychiatry and Psychiatric Epidemiology*, 38, 475-484.
- Smith-Merry, J. (2008). Improving mental health and wellbeing in Scotland: A model policy approach. *AeJAMH (Australian e-Journal for the Advancement of Mental Health)*, 7(3), 1-10. [Electronic Version] Retrieved 20/01/10 from <http://www.auseinet.com/journal/vol7iss3/smith-merry.pdf>.
- Snaith, R.P. (2003). The Hospital Anxiety and Depression Scale. *Health and Quality of Life Outcomes*, 1(29). [Electronic Version] Retrieved 20/11/09 from <http://www.hqlo.com/content/1/1/29>.
- Snekkevik, H., Anke, A.G.W., Stanghelle, J.O.K. & Fugl-Meyer, A.R. (2003). Is sense of coherence stable after multiple trauma? *Clinical Rehabilitation*, 17(4), 443-453.
- Spearing, M.K., Post, R.M., Leverich, G.S., Brandt, D. & Nolen, W. (1997). Modification of the Clinical Global Impressions (CGI) scale for use in bipolar illness (BP): the CGI-BP. *Psychiatric Research*, 73(3), 159-171.
- Spitzer, R.L., Williams, J.B., Kroenke, K., Linzer, M., deGruy, F.V., Hahn, S.R. *et al.* (1994). Utility of a new procedure for diagnosing mental disorders in primary care. The PRIME-MD 1000 study. *Journal of the American Medical Association*, 272, 1749-1756.
- Strümpfer, D.J.W. (1995). The origins of health and strength: From "salutogenesis" to "fortigenesis.". *South African Journal of Psychology*, 25, 81-89.
- Suominen, S., Helenius, H., Blomberg, H., Uutela, A. & Koskenvuo, M. (2001). Sense of coherence as a predictor of subjective state of health: Results of 4 years of follow-up of adults. *Journal of Psychosomatic Research*, 50(2), 77-86.
- Tabachnick, B.G. & Fidell, L.S. (1996). Using multivariate statistics (3rd edition). New York: HarperCollins in J. Pallant (2001). *SPSS Survival Manual: A step by step guide to data analysis using SPSS*. Buckingham: Open University Press.
- Tuncay, T., Musabak, I., Gok, D.E. & Kutlu, M. (2008). The relationship between anxiety, coping strategies and characteristics of patients with diabetes. *Health and Quality of Life Outcomes*, 6(79). [Electronic Version] Retrieved 15/8/09 from <http://www.hqlo.com/content/6/1/79>.

- Vedhara, K., Shanks, N., Wilcock, G. & Lightman, S.L. (2001). Correlates and predictors of self-reported psychological and physical morbidity in chronic caregiver stress. *Journal of Health Psychology*, 6(1), 101-119.
- Veenstra, M., Moum, T. & Roysamb, E. (2005). Relationships between health domains and sense of coherence: A two-year cross-lagged study in patients with chronic illness. *Quality of Life Research*, 14, 1455-1465.
- Volanen, S.M., Suominen, S., Lahelma, E., Koskenvuo, M., & Silventoinen, K. (2007). Negative life events and stability of sense of coherence: A five-year follow-up study of Finnish women and men. *Scandinavian Journal of Psychology*, 48(5), 433-441.
- Wells, T. (in press). Applied Psychologists and Psychology in NHS Scotland .Working Group Discussion Paper (Draft).
- Williams, C. (2001). Use of written cognitive-behavioural therapy self-help materials to treat depression. *Advances in Psychiatric Treatment*, 7, 233-240.
- Wolff, A. C. & Ratner, P. A. (1999). Stress, social support and sense of coherence. *Western Journal of Nursing Research*, 21, 182-197.
- World Health Organisation (2005). *Promoting Mental Health: Concepts, Emerging Evidence and Practice*. World Health Organisation. [Electronic Version] Retrieved 19/01/10 from http://www.who.int/mental_health/evidence/MH_Promotion_Book.pdf.
- Yalcin, I. & Bump, R. (2003). Validation of two global impression questionnaires for incontinence. *American Journal of Obstetrics and Gynecology*, 189(1), 98-101.
- Zigmond, A. S. & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, 67, 361-370.
- Zimmerman, M., Posternak, M.A. & Chelminski, I. (2004). Using a self-report depression scale to identify remission in depressed outpatients. *American Journal of Psychiatry*, 161, 1911-1913.

6. Appendices

- Appendix 1: Invitation letter
- Appendix 2: Information sheet
- Appendix 3: Consent form
- Appendix 4: Sense of Coherence (SOC) scale
- Appendix 5: Brief coping orientations to problems experienced scale (Brief COPE)
- Appendix 6: Hospital Anxiety and Depression (HADS) scale
- Appendix 7: Patient Global Impression of Severity (PGI-S) scale
- Appendix 8: Patient Global Impression of Improvement (PGI-I) scale
- Appendix 9: Socio-demographic form
- Appendix 10: Ethical approval documentation
- Appendix 11: Z scores for main study variables
- Appendix 12: Histograms and Q-Q plots to examine distribution of data



Client's Invitation to Participate in a Research Study

Dear Sir/Madam,

My name is Mhairi Williams, I am a Trainee Clinical Psychologist working in the Department of Psychological Services and Research. I am completing my Doctorate degree in Clinical Psychology (Research) at the University of Edinburgh.

As part of the academic requirements of the course, I have to undertake a research study. To fulfil this, I would appreciate your help in taking part in this study.

However, before you decide whether to take part in the study or not, please take the time to read the following information carefully. Feel free to contact me on the number below if there is anything that is not clear or if you would like more information.

Many thanks for your cooperation

Regards
Mhairi Williams
Trainee Clinical Psychologist
The Department of Psychological Services and Research
Nithbank
DG1 2SA
Tel: 01387244495
Fax: 01387244496
Email: Mhairi.Williams@nhs.net



Research Study

Examining how coping is related to the outcome of treatment in a self-help service.

PARTICIPANT INFORMATION SHEET

Researcher: Mhairi Williams
Trainee Clinical Psychologist
Department of Psychology
Nithbank
DG1 2SA
DUMFRIES
TEL: 01387244495
FAX: 01387244496
EMAIL: Mhairi.Williams@nhs.net

Information leaflet for potential participants

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being conducted and what it would involve for you. Please take time to read the following information and if you wish feel free to discuss it with others, for example, friends and or relatives. If there is anything that seems unclear, or you would like to know more about please ask your self help worker or contact the researcher.

What is the purpose of this study?

The study aims to examine if the way clients cope and their views about coping before entering a self help service predicts the outcome of their treatment. The research will provide us with more information about the type of people who are more likely to benefit from a self help intervention. It may also help to identify when self help may not be beneficial and when the person should be referred to another service. The information from this study will help people who work in this field to provide a more productive and efficient service for clients. Therefore, clients aged 30-64 who have been referred to the self help service will be invited to participate. The research is being conducted as part of a qualification of Doctorate in Clinical Psychology.

What will happen if I take part?

The study will involve completing 5 short questionnaires (3 before 1st appointment-at home, 2 at your 1st appointment-in clinic) at the beginning of your self help treatment and 3 short questionnaires at the end of your self help treatment (normally after the 3rd appointment). No further involvement from you will be required. You will only be involved in the study until the end of your self help treatment. It will take approximately twenty minutes to complete the questionnaires before treatment and 20 minutes after treatment.

What will I have to do?

If you agree to participate in the study you are asked to follow the steps below:

Prior to 1st appointment

1. Please give your written informed consent by signing and dating the consent form enclosed. Write your initials against each box on the form to indicate that you understand and agree to the conditions of the study.
2. Open the enclosed envelop labelled open before 1st appointment. Please complete the 3 short questionnaires inside. The questionnaires should be kept together in the envelope provided.

Bring all the completed forms to your 1st appointment.

3. Bring the envelope containing the consent form, and 3 questionnaires to your first appointment. Your self help therapist will ask you to complete two further questionnaires at your appointment. Place them in the sealed envelope with your other forms and give back to your self help therapist.

After your last appointment.

4. Your self help therapist will give you an unopened envelope at the end of your last appointment. Please open this and complete the 3 questionnaires inside (same as the initial questionnaires). Place in sealed envelope provided and return to self help therapist.

If you decide to drop out of the study your data may still be used to allow a comparison to be made with clients attending more sessions.

What are the possible benefits of taking part?

There will be no direct benefits for you in taking part in this study. However, you will be helping to advance knowledge and understanding about which people would benefit from a self help approach. We aim to be able to use this information to direct future clients to the correct psychological service, which will be best to meet their needs. If people are not gaining benefit from self help we aim to be able to understand why this is and if we can make changes to increase its effectiveness.

What are the possible disadvantages and risks of taking part?

The questionnaires will focus on how you cope and the current difficulties you are attending the service to seek help for. You may find some of the questions upsetting or difficult to complete. If this occurs please talk to your self help worker who will be able to support you. The study will take up some of your time. However, we have tried to limit the number of questionnaires you have to complete at one time by spreading them out over three different time periods.

Should I take part?

Participation in the research is completely voluntary. You are not obliged to take part in the research. If you choose not to participate, your present and/or future psychological/medical care will not be affected in anyway. Your self help treatment will not differ if you choose to take part or not. You will not be seen quicker if you choose to take part or not. Also, please note that you can withdraw from the project at any time, without giving a reason.

What if something goes wrong?

As the study involves answering questionnaires there is very little that can go wrong. However, the researcher is ethically and legally obliged to tell you that there are no special compensation arrangements. If you are harmed due to someone's negligence, then you may have grounds for legal action but you may have to pay your legal costs. Regardless of this, if you wish to complain about any aspect of the way you have been approached or treated during the course of this study, the normal NHS complaints mechanisms will still be available to you.

Will my taking part in the study be kept confidential?

Please note that your personal details will not be disclosed to anyone who is not involved in your care – the researcher will not be aware of your identity or use personal details in any subsequent report. All identifying information will be removed and will be held in a secure office in a locked filing cabinet. To maintain anonymity your General Practitioner (GP) will not be informed if you decide to take part in the study or not.

What will happen to the results of the research study?

The results will be included in a Doctoral thesis for a fulfillment of the Doctorate in Clinical Psychology by the researcher. It is also anticipated that the results will be presented at conferences and to relevant staff groups, as well as submission to an academic journal. The results will remain anonymous and all information remains confidential. The researcher will write a report summarising the results for participant's interest. This report will be available to you in Winter/2010 in the Psychology department.

Who has reviewed the study/ ethical approval?

All research studies in the NHS are looked at by an independent group of people, called the Research Ethics Committee to protect your safety, rights and wellbeing. The West of Scotland Research Ethics Committee 4 have reviewed this study and it has received ethical approval.

For further information:

Please feel free to contact the researcher, Mhairi Williams on 01387 244495 (Tuesday to Friday).

Independent advice:

If you would like to speak to someone other than the researcher about the study **Dr Katie Mackie, Clinical Psychologist** is available to offer independent advice. She can be contacted on **01387 244495**.



Department of Psychology
Nithbank Hospital
Nithbank
DG1 2SA
Tel: 01387 244495
Fax: 01387 244496



Patient Identifier Number:

Participant Consent
Version 2 (13/12/2009)
Ref No: 09/S0704/75

PARTICIPANT CONSENT FORM

Project Title: Examining how coping is related to the outcome of treatment in a Self-help service.

Main Researcher: Mhairi Williams (Trainee Clinical Psychologist)

Please put a tick in each of the boxes to show that you have read the information:

1. I confirm that I have read and understand the information sheet dated for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.
3. I understand that relevant sections of my self-help notes will be examined by my self-help worker from NHS Dumfries and Galloway, where it is relevant to my taking part in this research. The data collected during the study will be examined by Mhairi Williams from NHS Dumfries and Galloway, I give permission for these individuals to have access to my information.
4. I agree to take part in the above study.

Print Name

Date

Signature

Here is a series of questions relating to various aspects of our lives. Each question has seven possible answers. Please mark the number that expresses your answer, with numbers 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1; if the words under 7 are right for you, circle 7. If you feel differently, circle the number that best expresses your feeling. Please give only one answer to each question.

1. Do you have the feeling that you don't really care about what goes on around you?

| | | | | | | |
|--------------------|---|---|---|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very seldom</i> | | | | | | <i>very often</i> |
| <i>or never</i> | | | | | | |

2. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?

| | | | | | | |
|-----------------|---|---|---|---|---|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>never</i> | | | | | | <i>always</i> |
| <i>happened</i> | | | | | | <i>happened</i> |

3. Has it happened that people whom you counted on disappointed you?

| | | | | | | |
|-----------------|---|---|---|---|---|-----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>never</i> | | | | | | <i>always</i> |
| <i>happened</i> | | | | | | <i>happened</i> |

4. Until now your life has had:

| | | | | | | |
|--------------------------|---|---|---|---|---|-------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>no clear goals</i> | | | | | | <i>very clear goals</i> |
| <i>or purpose at all</i> | | | | | | <i>and purpose</i> |

5. Do you have the feeling that you're being treated unfairly?

| | | | | | | |
|-------------------|---|---|---|---|---|---------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very often</i> | | | | | | <i>very seldom or never</i> |

6. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

| | | | | | | |
|--------------------------------|---|---|---|---|---|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very often or never</i> | | | | | | <i>very seldom</i> |

7. Doing the things you do everyday is:

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>a source of deep pleasure and satisfaction</i> | | | | | | <i>a source of pain and boredom</i> |

8. Do you have very mixed-up feelings and ideas?

| | | | | | | |
|-------------------|---|---|---|---|---|---------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very often</i> | | | | | | <i>very seldom or never</i> |

9. Does it happen that you have feelings inside you would rather not feel?

| | | | | | | |
|-------------------|---|---|---|---|---|---------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very often</i> | | | | | | <i>very seldom or never</i> |

10. Many people – even those with a strong character – sometimes feel like losers in certain situations. How often have you felt this way in the past?

| | | | | | | |
|--------------|---|---|---|---|---|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>never</i> | | | | | | <i>very often</i> |

11. When something happened, have you generally found that:

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>you overestimated or underestimated its importance</i> | | | | | | <i>you saw things in the right proportion</i> |

12. How often do you have the feeling that there's little meaning in the things you do in your daily life?

| | | | | | | |
|-------------------|---|---|---|---|---|---------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very often</i> | | | | | | <i>very seldom or never</i> |

13. How often do you have feelings that you're not sure you can keep under control?

| | | | | | | |
|-------------------|---|---|---|---|---|---------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <i>very often</i> | | | | | | <i>very seldom or never</i> |

These items deal with ways you've been coping with the stress in your life. There are many ways to try to deal with stress. This questionnaire asks you to indicate what you generally do and feel, when you experience stressful events. Obviously, different events bring out somewhat different responses, but think of what you usually do when you are under a lot of stress. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

Respond to each of the following items by blackening one number on your answer sheet for each, using the responses listed just below. Please answer every item. There are no “right” or “wrong” answers, so choose the most accurate answer for you.

- 1 = I haven't been doing this at all
 2 = I've been doing this a little bit
 3 = I've been doing this a medium amount
 4 = I've been doing this a lot

| | | | | | |
|----|---|---|---|---|---|
| 1 | I've been turning to work or other activities to take my mind off things. | ① | ② | ③ | ④ |
| 2 | I've been concentrating my efforts on doing something about the situation I'm in. | ① | ② | ③ | ④ |
| 3 | I've been saying to myself "this isn't real.". | ① | ② | ③ | ④ |
| 4 | I've been using alcohol or other drugs to make myself feel better. | ① | ② | ③ | ④ |
| 5 | I've been getting emotional support from others. | ① | ② | ③ | ④ |
| 6 | I've been giving up trying to deal with it. | ① | ② | ③ | ④ |
| 7 | I've been taking action to try to make the situation better. | ① | ② | ③ | ④ |
| 8 | I've been refusing to believe that it has happened. | ① | ② | ③ | ④ |
| 9 | I've been saying things to let my unpleasant feelings escape. | ① | ② | ③ | ④ |
| 10 | I've been getting help and advice from other people. | ① | ② | ③ | ④ |
| 11 | I've been using alcohol or other drugs to help me get | ① | ② | ③ | ④ |

Appendix 5: Brief Coping Orientations to Problems Experienced Scale (Brief COPE)

| | | | | | |
|----|---|---|---|---|---|
| | through it. | | | | |
| 12 | I've been trying to see it in a different light, to make it seem more positive. | ① | ② | ③ | ④ |
| 13 | I've been criticizing myself. | ① | ② | ③ | ④ |
| 14 | I've been trying to come up with a strategy about what to do. | ① | ② | ③ | ④ |
| 15 | I've been getting comfort and understanding from someone. | ① | ② | ③ | ④ |
| 16 | I've been giving up the attempt to cope. | ① | ② | ③ | ④ |
| 17 | I've been looking for something good in what is happening. | ① | ② | ③ | ④ |
| 18 | I've been making jokes about it. | ① | ② | ③ | ④ |

Indicate what YOU usually do when YOU experience a stressful event.

1 = I usually don't do this at all

2 = I usually do this a little bit

3 = I usually do this a medium amount

4 = I usually do this a lot

| | | | | | |
|----|--|---|---|---|---|
| 19 | I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping. | ① | ② | ③ | ④ |
| 20 | I've been accepting the reality of the fact that it has | ① | ② | ③ | ④ |

Appendix 5: Brief Coping Orientations to Problems Experienced Scale (Brief COPE)

| | | | | | |
|----|--|---|---|---|---|
| | happened. | | | | |
| 21 | I've been expressing my negative feelings. | ① | ② | ③ | ④ |
| 22 | I've been trying to find comfort in my religion or spiritual beliefs | ① | ② | ③ | ④ |
| 23 | I've been trying to get advice or help from other people about what to do. | ① | ② | ③ | ④ |
| 24 | I've been learning to live with it. | ① | ② | ③ | ④ |
| 25 | I've been thinking hard about what steps to take. | ① | ② | ③ | ④ |
| 26 | I've been blaming myself for things that happened. | ① | ② | ③ | ④ |
| 27 | I've been praying or meditating. | ① | ② | ③ | ④ |
| 28 | I've been making fun of the situation. | ① | ② | ③ | ④ |

Hospital Anxiety and Depression Scale (HADS)



Name: _____ Date: _____

Clinicians are aware that emotions play an important part in most illnesses. If your clinician knows about these feelings he or she will be able to help you more.

This questionnaire is designed to help your clinician to know how you feel. Read each item below and **underline the reply** which comes closest to how you have been feeling in the past week. Ignore the numbers printed at the edge of the questionnaire.

Don't take too long over your replies, your immediate reaction to each item will probably be more accurate than a long, thought-out response.

I feel tense or 'wound up'

Most of the time
A lot of the time
From time to time, occasionally
Not at all

I still enjoy the things I used to enjoy

Definitely as much
Not quite so much
Only a little
Hardly at all

I get a sort of frightened feeling as if something awful is about to happen

Very definitely and quite badly
Yes, but not too badly
A little, but it doesn't worry me
Not at all

I can laugh and see the funny side of things

As much as I always could
Not quite so much now
Definitely not so much now
Not at all

Worrying thoughts go through my mind

A great deal of the time
A lot of the time
Not too often
Very little

I feel cheerful

Never
Not often
Sometimes
Most of the time

I can sit at ease and feel relaxed

Definitely
Usually
Not often
Not at all

I feel as if I am slowed down

Nearly all the time
Very often
Sometimes
Not at all

I get a sort of frightened feeling like 'butterflies' in the stomach

Not at all
Occasionally
Quite often
Very often

I have lost interest in my appearance

Definitely
I don't take as much care as I should
I may not take quite as much care
I take just as much care as ever

I feel restless as if I have to be on the move

Very much indeed
Quite a lot
Not very much
Not at all

I look forward with enjoyment to things

As much as I ever did
Rather less than I used to
Definitely less than I used to
Hardly at all

I get sudden feelings of panic

Very often indeed
Quite often
Not very often
Not at all

I can enjoy a good book or radio or television programme

Often
Sometimes
Not often
Very seldom

Now check that you have answered all the questions

This form is printed in green. Any other colour is an unauthorized photocopy.

TOTAL

HADS copyright © R.P. Snaith and A.S. Zigmond, 1983, 1992, 1994.

Record form items originally published in *Acta Psychiatrica Scandinavica* 67, 361-70, copyright © Munksgaard International Publishers Ltd, Copenhagen, 1983.

First published in 1994 by nferNelson Publishing Company Ltd.

Published by GL Assessment Limited, The Chiswick Centre, 414 Chiswick High Road, London W4 5TF

GL Assessment is part of the Granada Group

Code 0090002511

Printed in Great Britain

10(1.09)

Check the one number that best describes how your difficulty is now?

1. Normal
2. Mild
3. Moderate
4. Severe

Check the one number that best describes how your difficulty that brought you to self-help is now, compared with how it was before you attended?

1. Very much better
2. Much better
3. A little better
4. No change
5. A little worse
6. Much worse
7. Very much worse

Client Socio-demographical Questionnaire

Client's Code: _____

Please indicate your responses with a X in the appropriate box and complete the empty spaces where necessary:

1. *Gender:* _____ 2. *Age:* _____ 3. *Postcode:* _____
Male ☐ Female ☐

4. *Current relationship status:*
Single/ never married ☐ Married/ living as married ☐ Separated ☐
Divorced ☐ Widowed ☐ Other ☐

5. *Highest level of Education* _____

6. *Years of Education* _____

7. *Employment status:* _____ Employed ☐ Unemployed ☐

If unemployed please state how long you have been out of employment _____

If employed please state your current occupation _____

8. *Ethnicity:*
White ☐ Black Caribbean ☐ Black African ☐ Indian ☐ Pakistani ☐ Bangladeshi ☐
Chinese ☐ Black – other ☐ Other ☐ (please specify): _____

9. *Have you previously been diagnosed with any psychiatric/psychological illness?*
No ☐ Yes ☐ I don't know ☐ If yes please specify: _____

10. *Have you received any form of psychological therapy in the past?*
Yes ☐ No, this is my first time ☐ If yes, please specify _____

11. *Are you taking any medication for your psychological difficulties?* Yes ☐ No ☐
If yes please specify _____

12. *How long have you been taking this medication for?* _____

-2-

11 January 2010

Letter to Miss M Williams.....continued/

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>. Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved Documents

The final list of documents reviewed and approved by the Committee is as follows:

| Document | Version | Date |
|---|---------|-------------------|
| Covering Letter | - | 17 November 2009 |
| REC application | - | 17 November 2009 |
| Protocol | 1 | 16 November 2009 |
| Investigator CV | 1 | 17 November 2009 |
| Participant Information Sheet | 1 | 22 August 2009 |
| Participant Consent Form | 1 | 22 August 2009 |
| Letter of invitation to participant | 1 | 22 August 2009 |
| Questionnaire: Demographic information | 1 | 22 August 2009 |
| Questionnaire: HADS | - | - |
| Questionnaire: Brieg-COPE | 1 | 22 August 2009 |
| Questionnaire: PGI-I and PGI-S | 1 | 22 August 2009 |
| Questionnaire: SOC-13 | 1 | 22 August 2009 |
| Dr E F Newman, Academic Supervisor's CV | 1 | 17 November 2009 |
| Letter from University of Edinburgh | - | 16 September 2009 |
| Protocol | 2 | 17 December 2009 |
| Participant Information Sheet | 2 | 14 December 2009 |
| Participant Consent Form | 2 | 13 December 2009 |
| Questionnaire: Client Socio-Demographical Questionnaire | 2 | 15 December 2009 |
| Response to Request for Further Information | - | 21 December 2009 |

Continued...../

www.mayg.org.uk

-3-

11 January 2010

Letter to Miss M Williams.....continued/**Statement of Compliance**

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After Ethical Review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

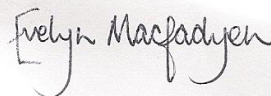
- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

09/S0704/75**Please quote this number on all correspondence**

Yours sincerely



for **Dr Brian Neilly**
Chair

Enclosures: "After ethical review – guidance for researchers"

Copy to: University of Edinburgh

Research and Development Support Unit
Ground Floor
Dumfries and Galloway Royal Infirmary
Bankend Road
Dumfries
DG1 4AP



Mhaire Williams
Dept Psychology
Nithbank

18th January 2010

Can Sense of Coherence predict therapeutic outcome of a brief guided self – help intervention?

Dear Dr Newman

Thank you for sending me details of your study with a request for management approval. I can confirm that the study review team has reviewed the documentation and on this basis I am pleased to inform you that your study has management approval for commencement within NHS Dumfries and Galloway.

It is a condition of this approval that everyone involved in this study abides by the guidelines/protocols laid down by this Health Board in respect of confidentiality and Research Governance. It is your responsibility to ensure you are familiar with these; please do not hesitate to seek advice if you are unsure. (Copies of Research Governance Framework document available via the website www.sehd.scot.nhs.uk/cso and then use the publications link).

We also note that it is the sponsor's responsibility to ensure that appropriate training is in place for all local investigators.

As part of the Health Board's responsibilities under Research Governance a sample of studies will be monitored, it is therefore important that all records, in connection with the study, are kept up to date and available for review. We are also required to inform you that details of your study will be entered onto our R&D database.

Please advise the R&D Support Unit immediately if you require to alter your protocol in any way. I understand that performance of this study will not infringe on NHS Dumfries and Galloway's ability to deliver our usual level of service.

May I take this opportunity to wish you every success with your project. Please do not hesitate to seek help and advice from the R&D Support Unit (ext 33164 and 33165) if there is anything which you feel you would like assistance with. I look forward to hearing about your work as it progresses.

Yours Sincerely,

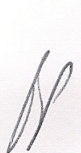

 
J.R. Lawrence
R&D Director

Table i: Z-scores for study measures

| Measure | Zskewness | Zkurtosis |
|--|-----------|-----------|
| Sense of Coherence Scale – 13 (n=86) | 1.34 | -0.58 |
| HADS Anxiety Subscale (Pre) (n=86) | -1.98 | 0.42 |
| HADS Depression Subscale (Pre) (n=86) | 1.11 | -0.86 |
| HADS Anxiety Subscale (Post) (n=51) | -1.29 | -1.23 |
| HADS Depression Subscales (Post) (n=51) | 1.69 | 0.92 |
| COPE Emotion Focused Subscale (n=86) | 1.58 | -0.54 |
| COPE Problem Focused Subscale (n=86) | 0.78 | 1.22 |
| COPE Avoidant Subscale (n=86) | 1.49 | 1.05 |
| Patient Global Impression of Severity PGI-S (Pre) (n=81) | -2.16 | 0.71 |
| Patient Global Impression of Severity PGI-S (Post) (n=51) | 0.55 | -0.77 |
| Patient Global Impression of Improvement Scale (PGI-I) (Post, n=51) | 1.98 | 1.26 |
| Anxiety HADS change score (post-pre) | 1.38 | 1.64 |
| Depression HADS change score (post-pre) | 0.82 | 0.90 |

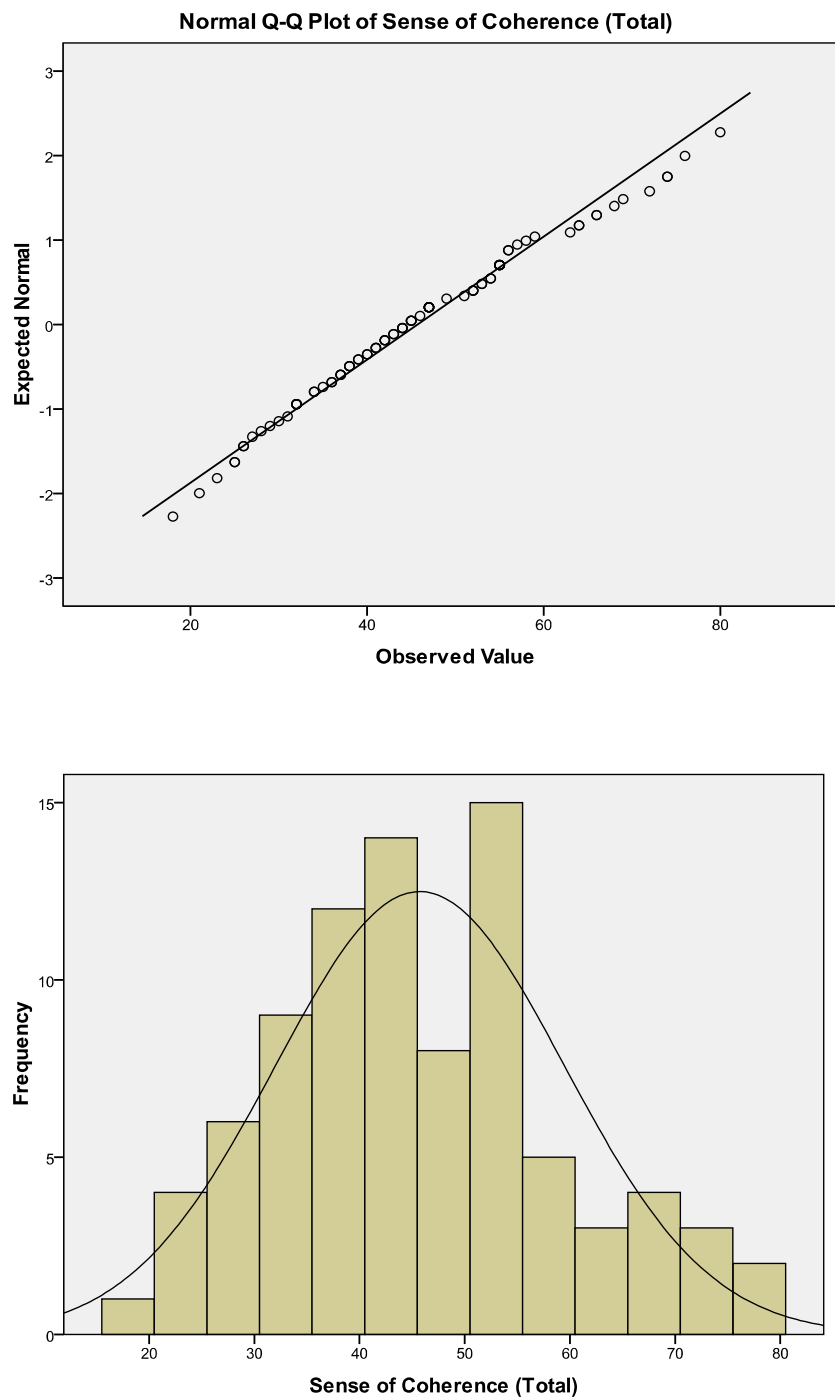


Figure i: Q-Q plot and histogram for Sense of Coherence

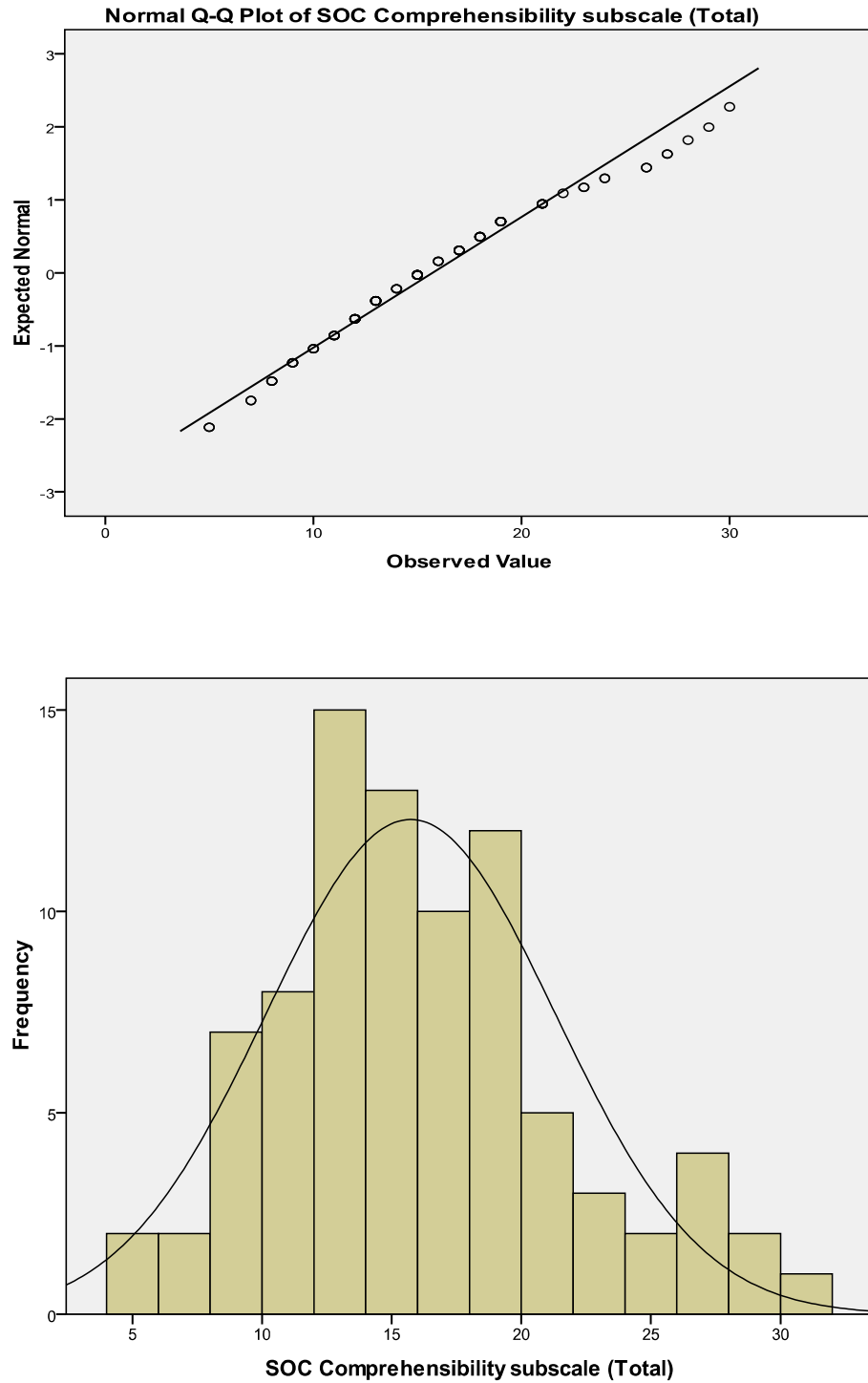


Figure ii: Q-Q plot and histogram for SOC Comprehensibility subscale (Total).

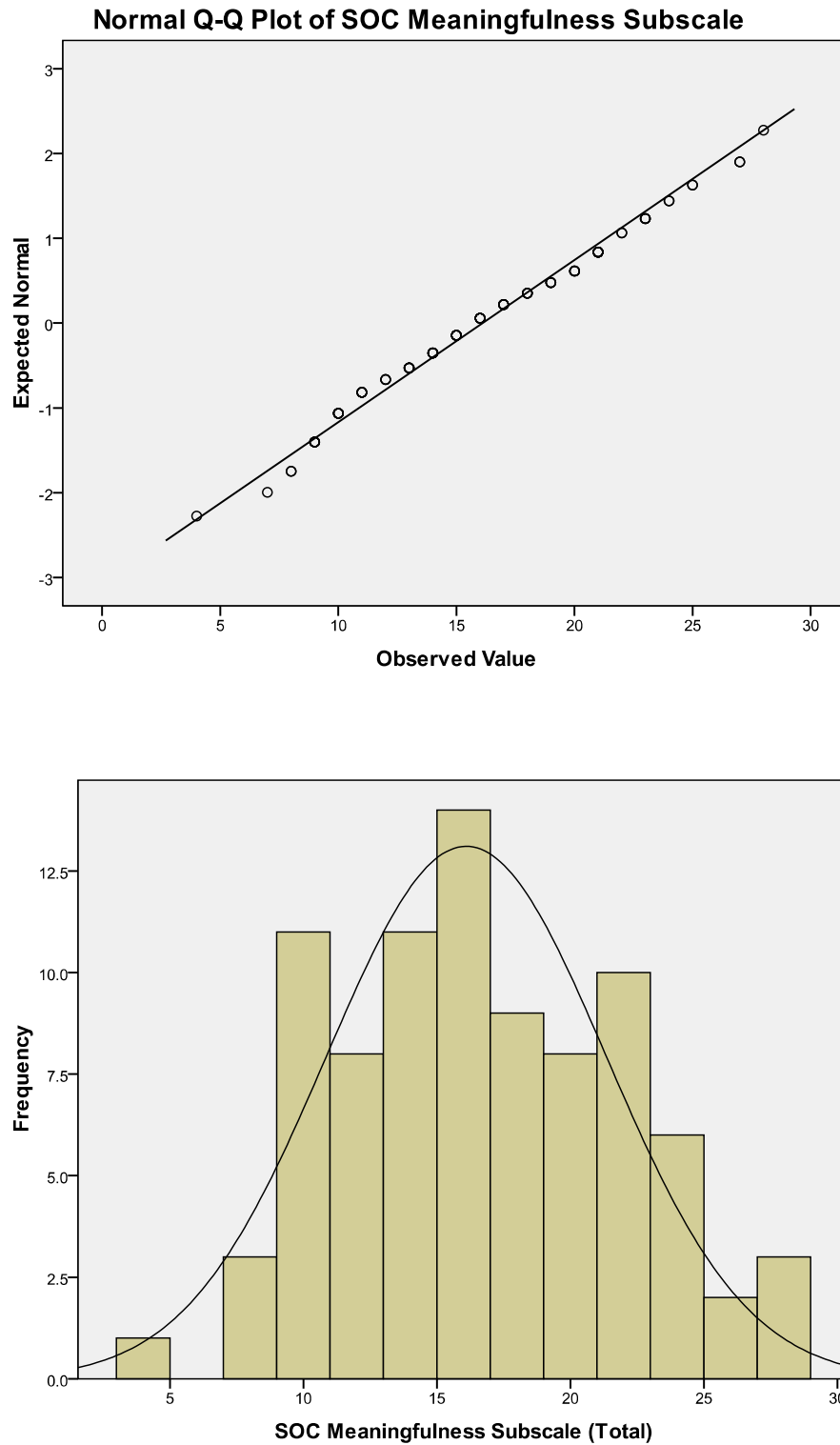


Figure: iii: Q-Q plot and histogram for Sense of Coherence Meaningfulness Subscale

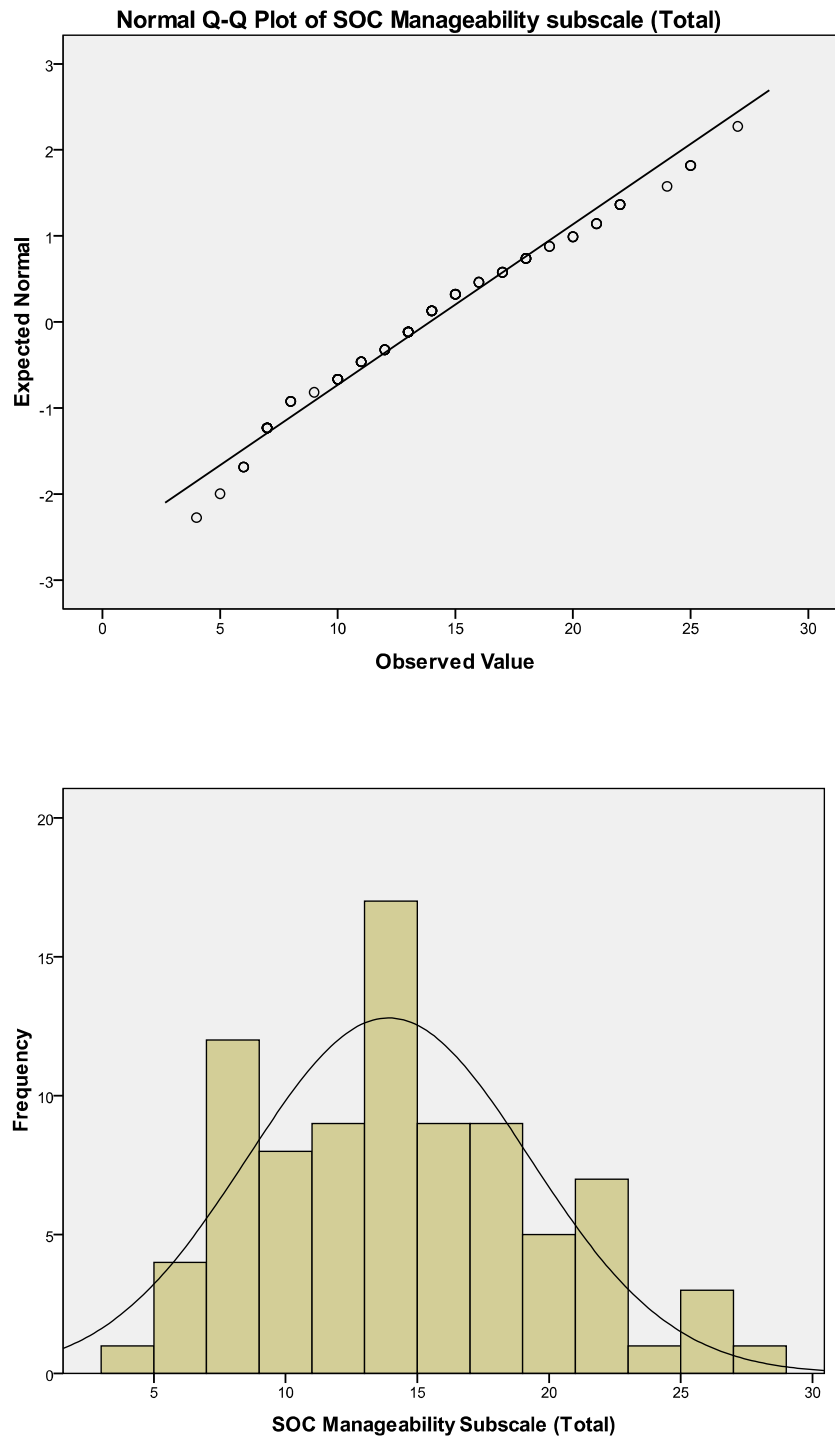


Figure iv: Q-Q plot and histogram for Sense of Coherence Manageability subscale

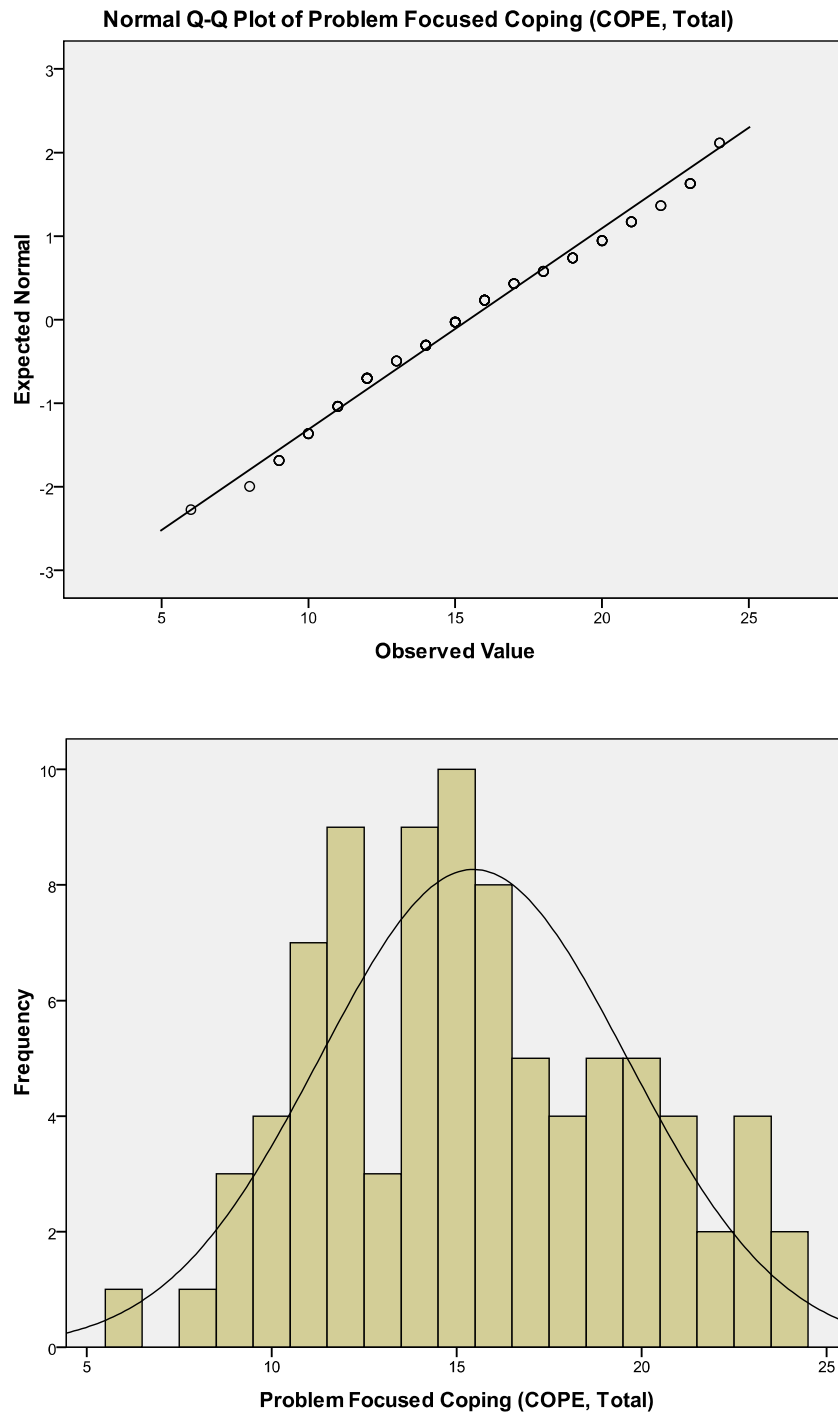


Figure v: Q-Q plot and histogram for Problem Focused Coping Subscale (COPE)

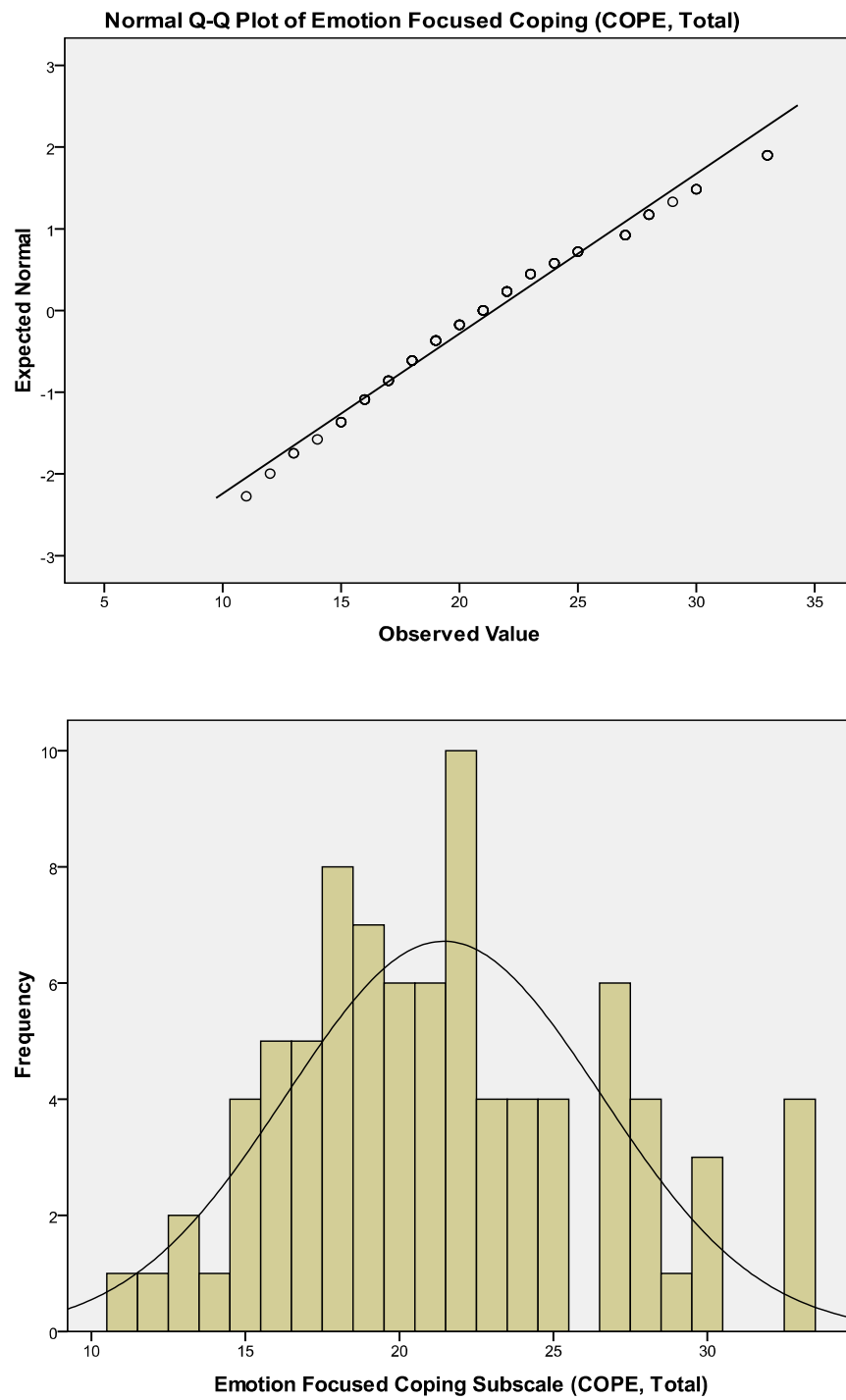


Figure vi: Q-Q plot and histogram for Emotion Focused Coping Subscale (COPE).

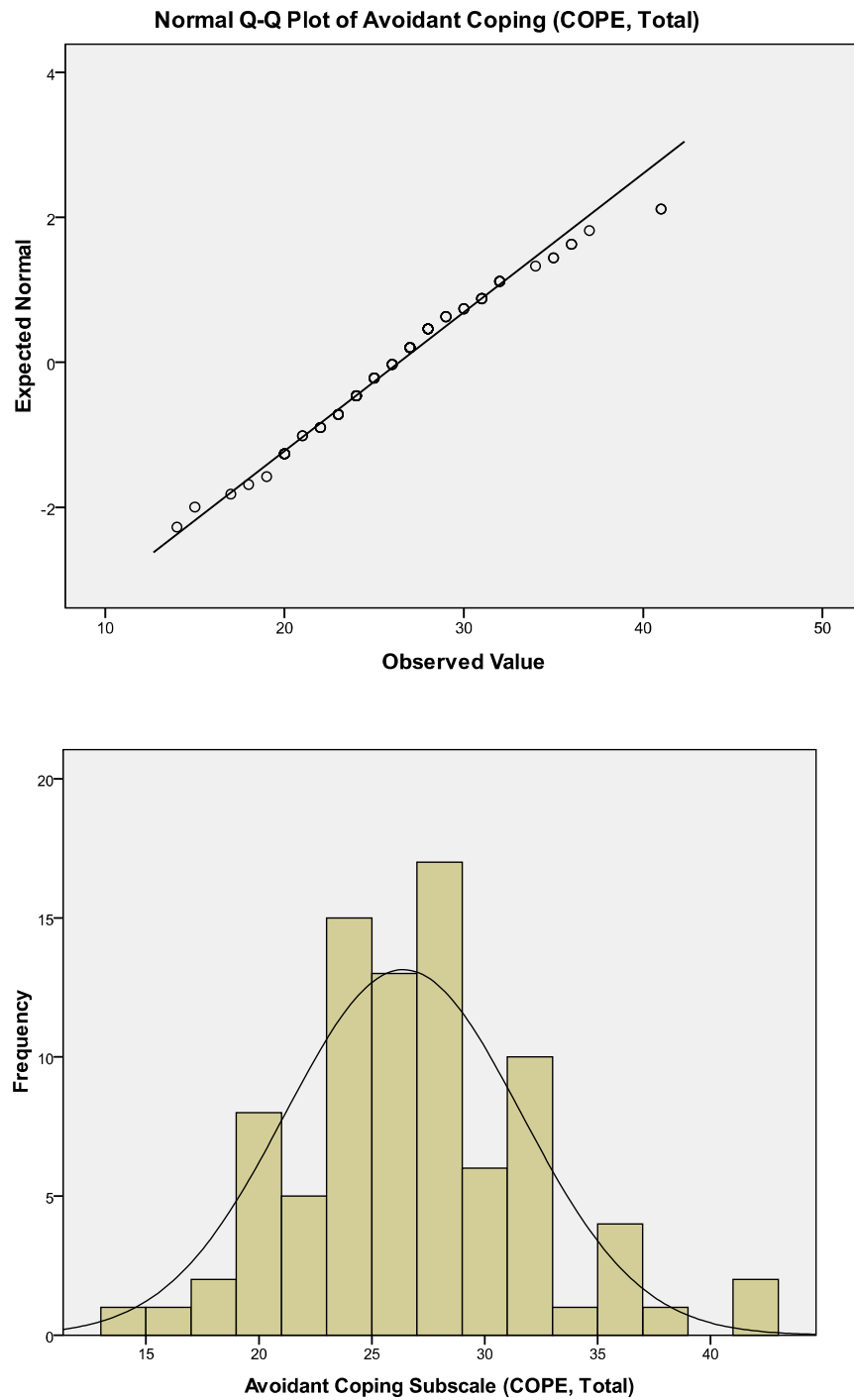


Figure vii: Q-Q plot and histogram for Avoidant Coping Subscale (COPE)

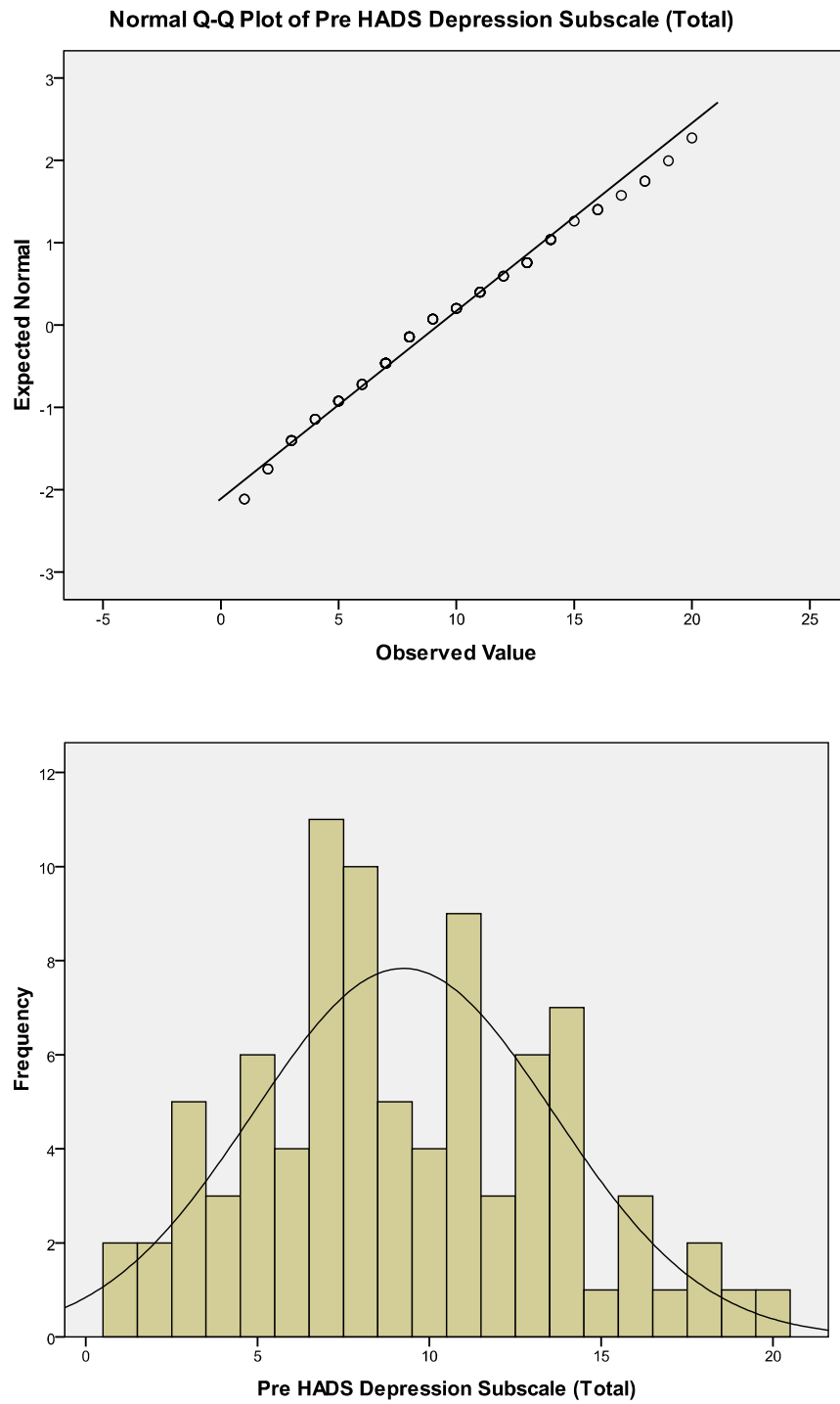


Figure viii: Q-Q plot and histogram for Pre HADS Depression Subscale

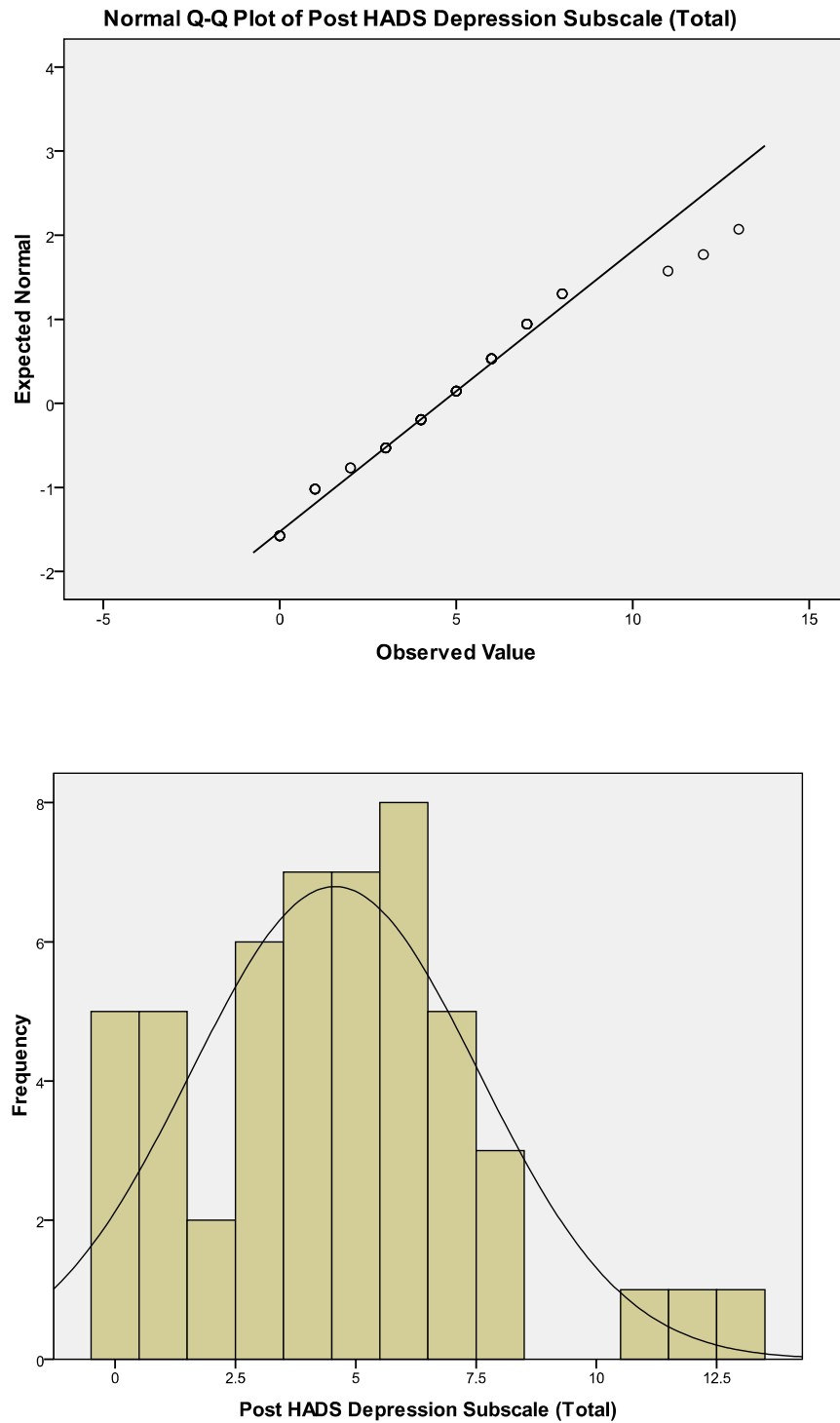


Figure ix: Q-Q plot and histogram for Post HADS Depression Subscale

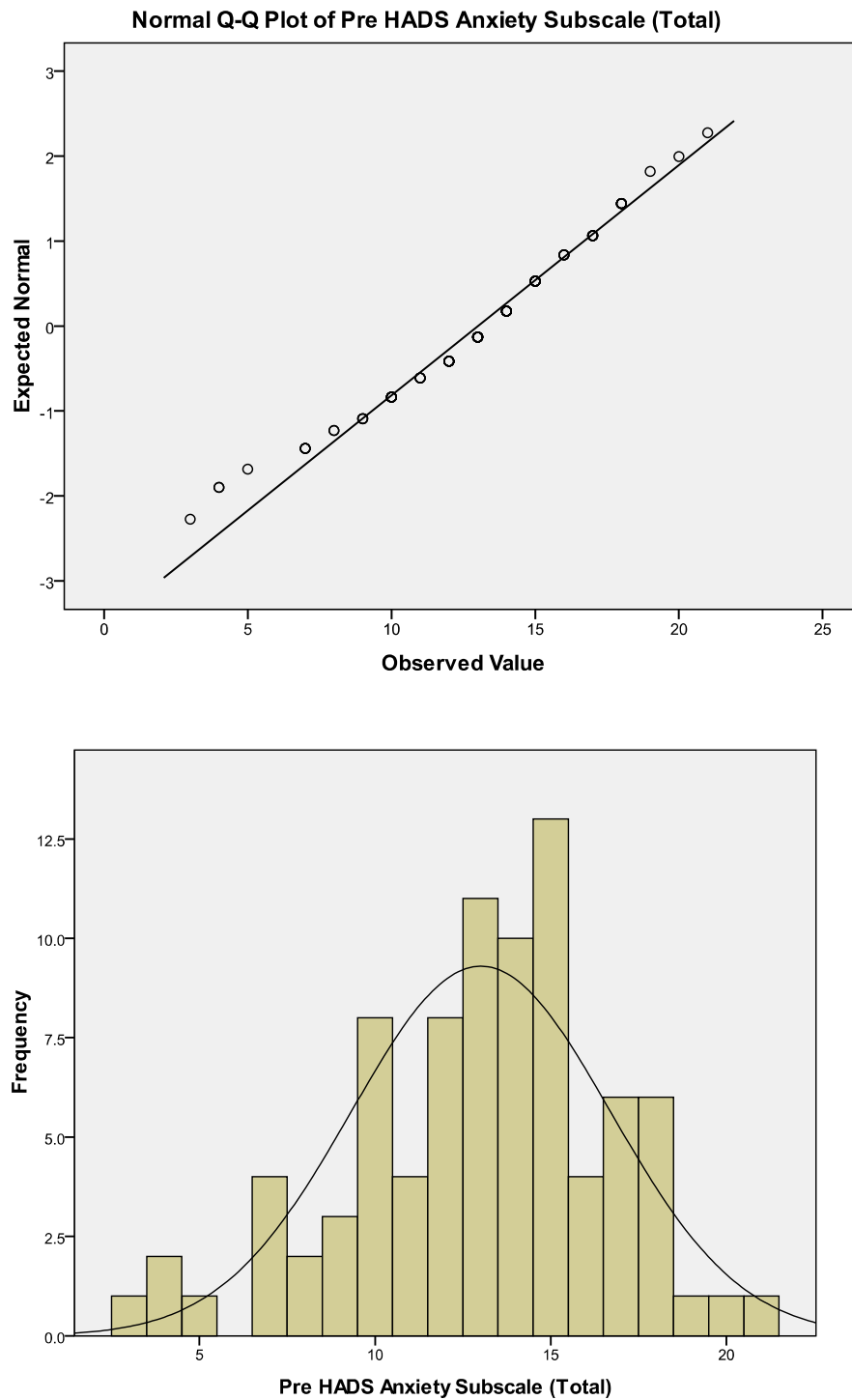


Figure x: Q-Q plot and histogram for Pre HADS Anxiety Subscale

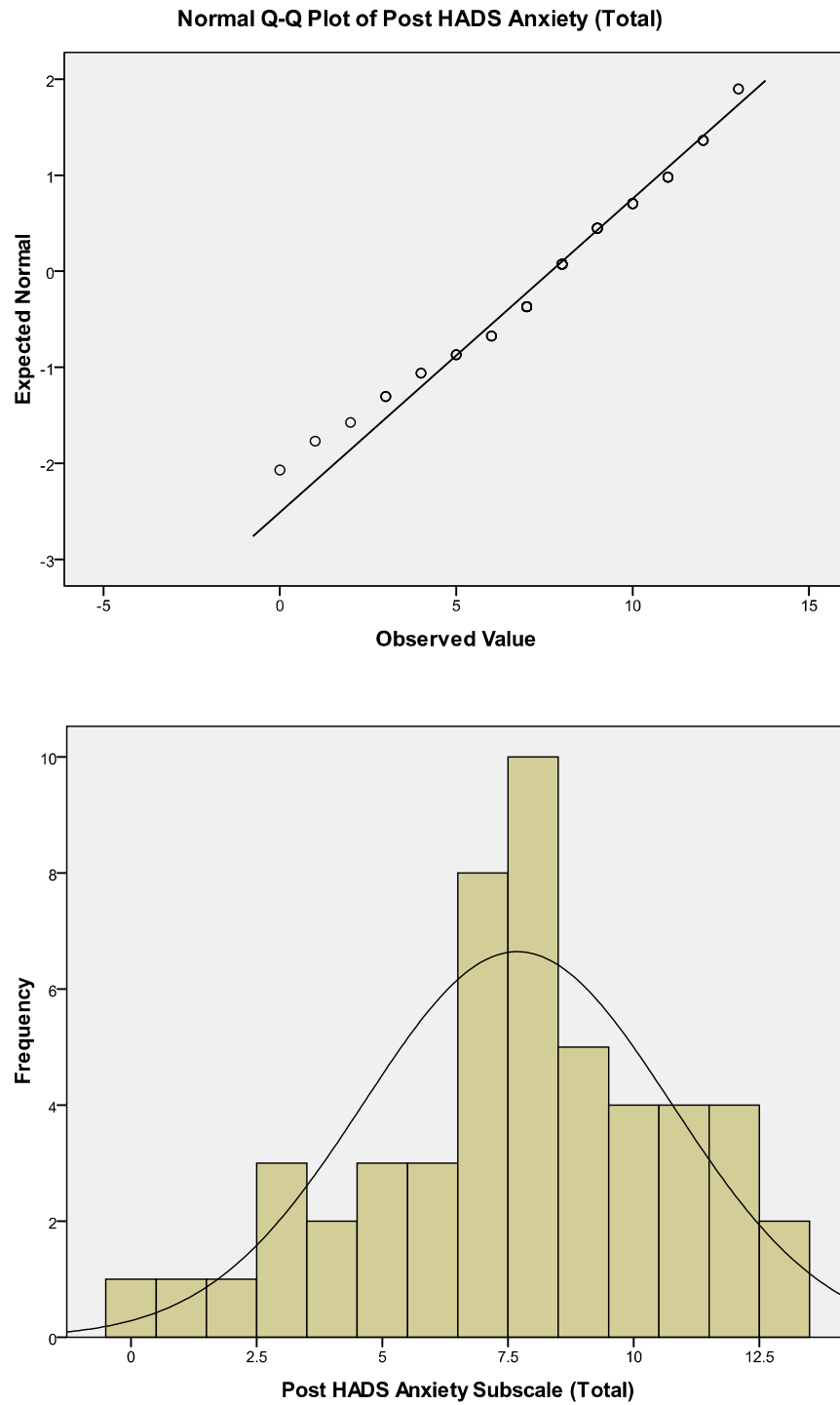


Figure xi: Q-Q plot and histogram for Post HADS Anxiety Subscale

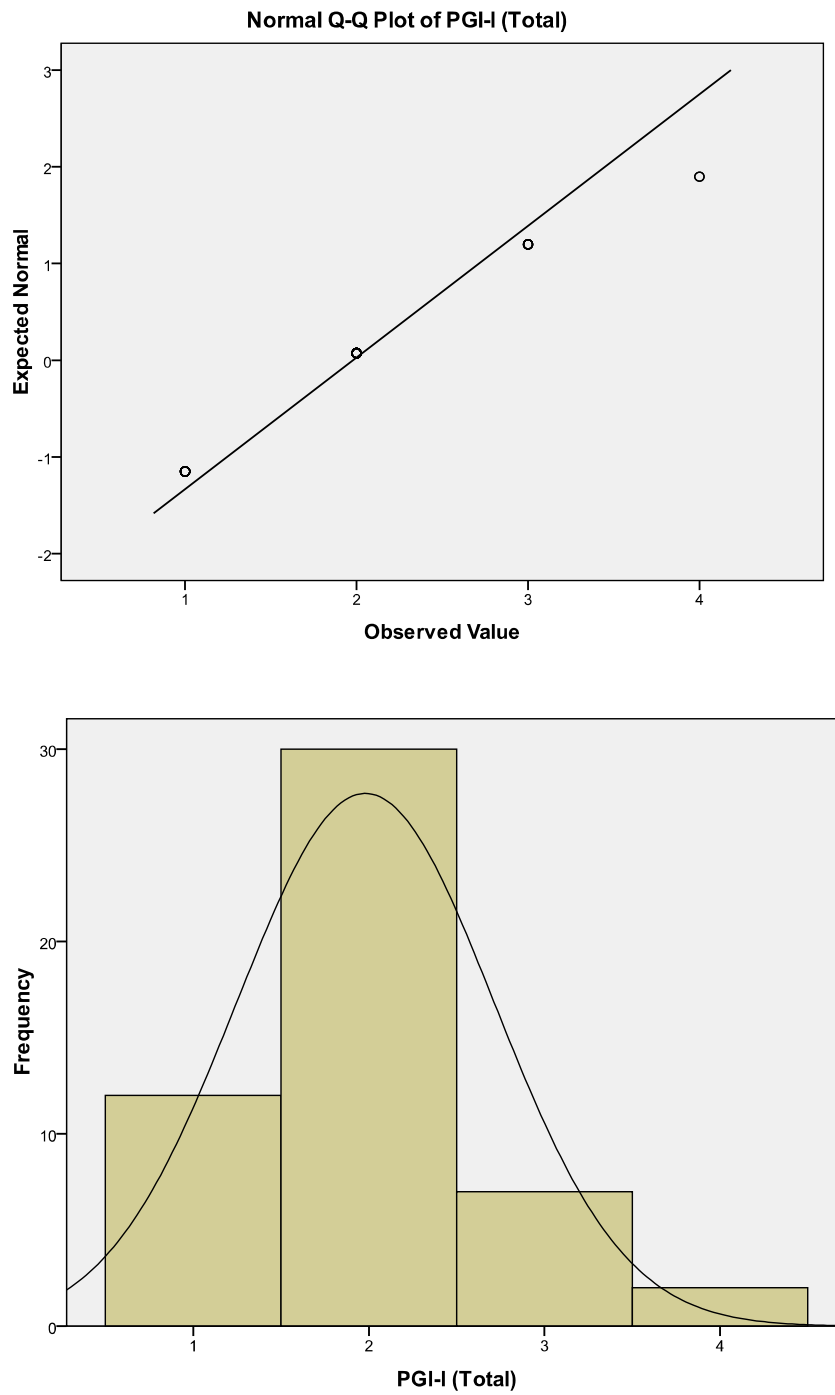


Figure xii: Q-Q plot and histogram for Patient Global Impression of Improvement

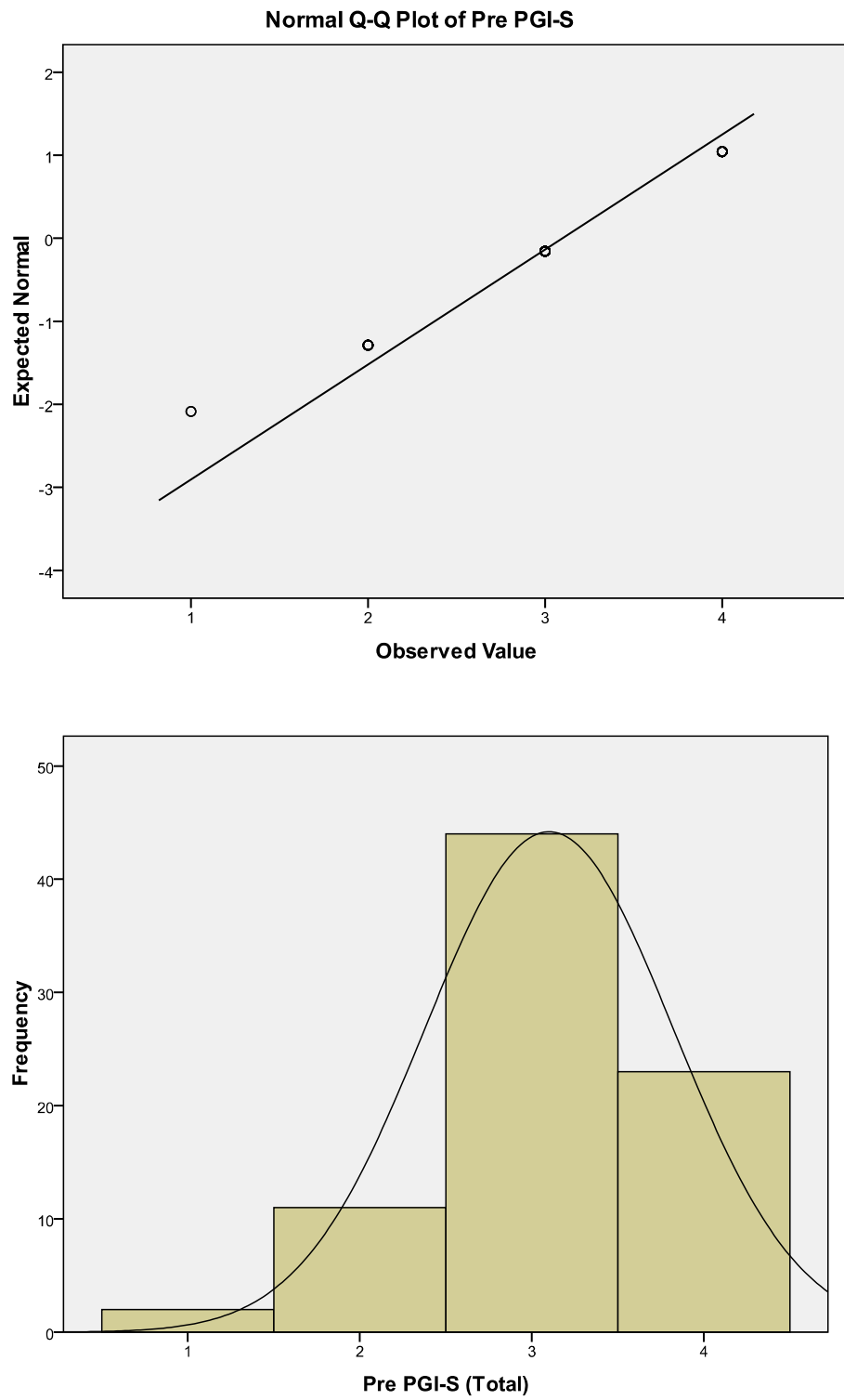


Figure xiii: Q-Q plot and histogram for Pre Patient Global Impression of Severity

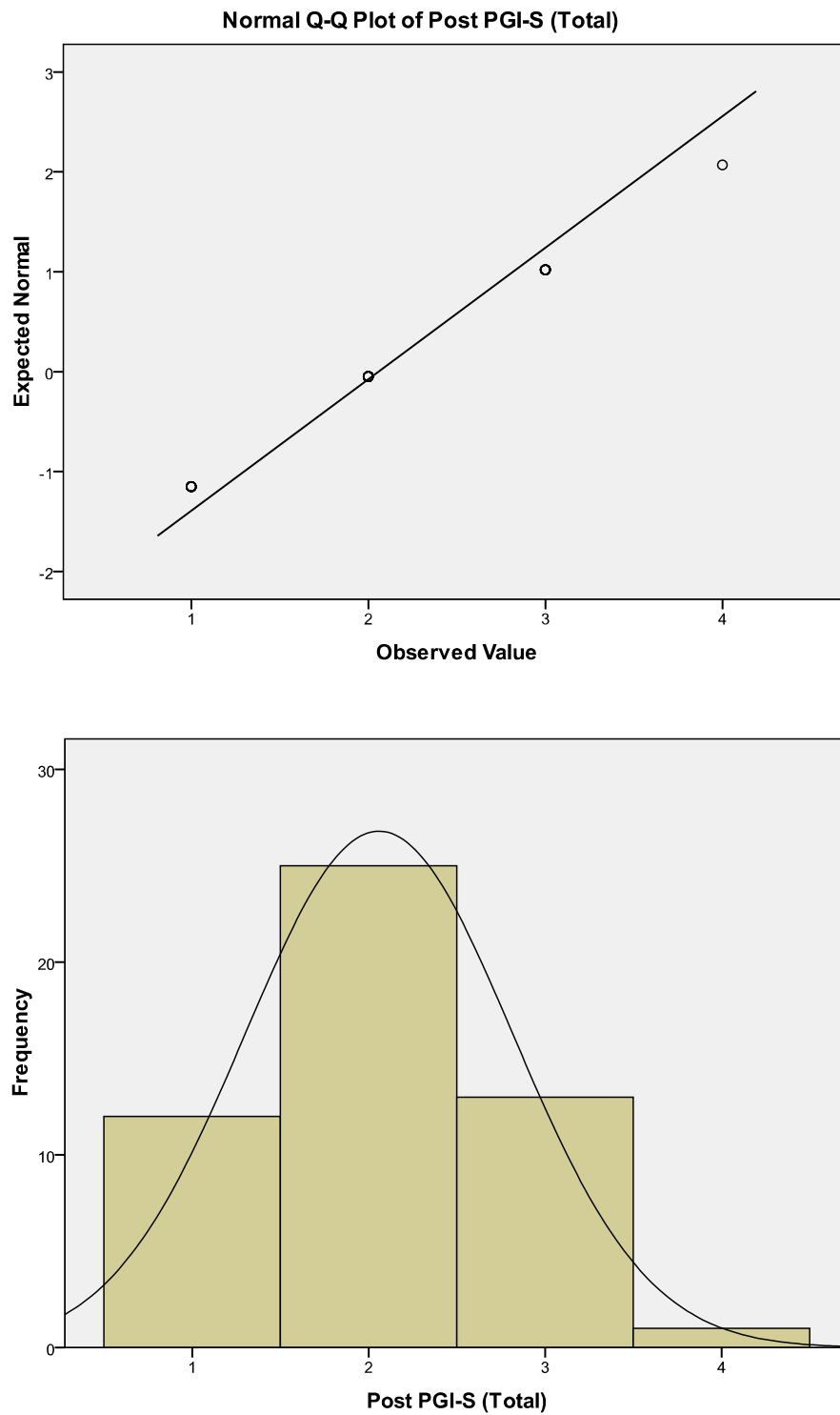


Figure xiv: Q-Q plot and histogram for Post Patient Global Impression of Severity

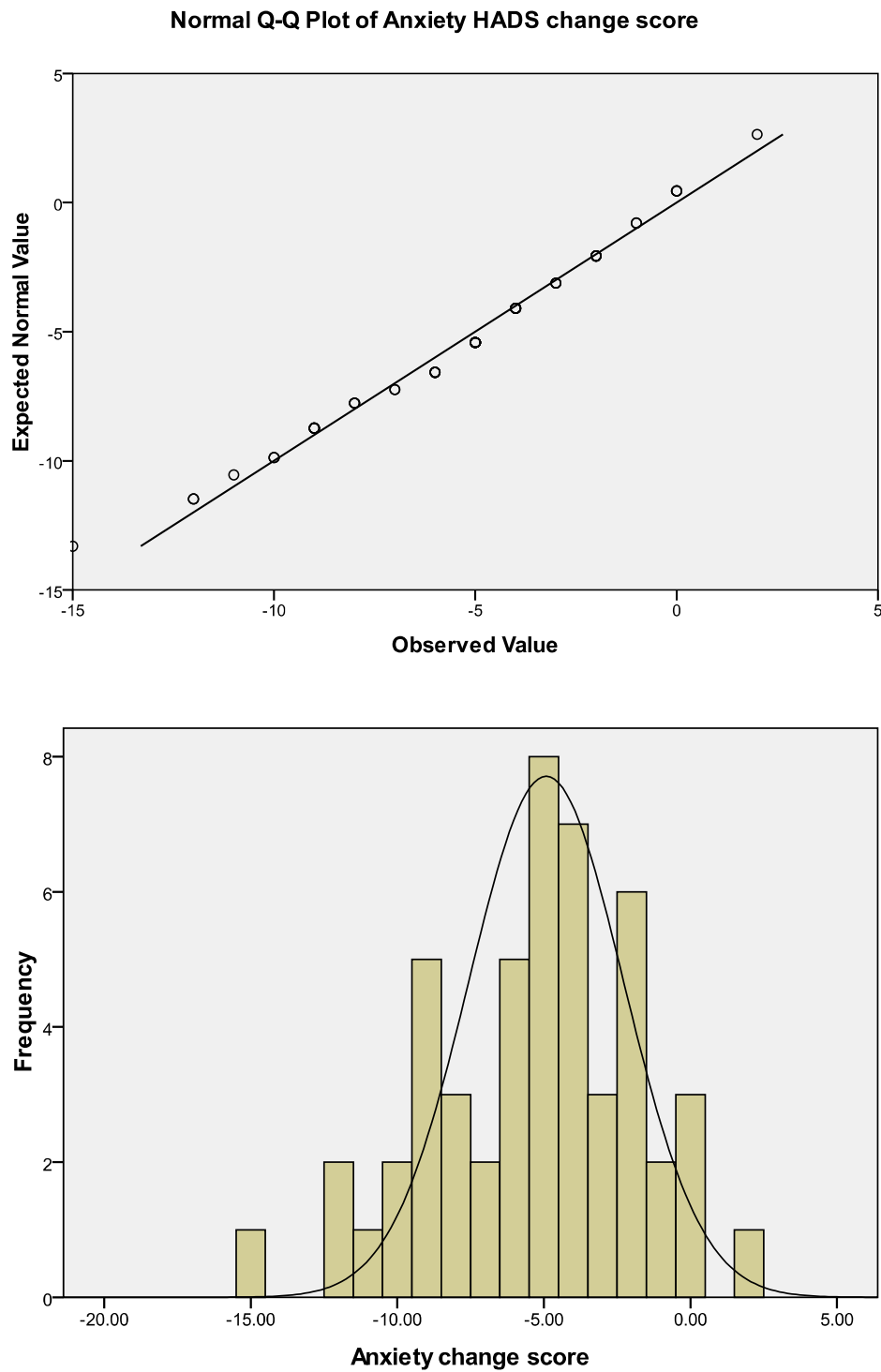


Figure xv: Q-Q plot and histogram for Anxiety HADS change score

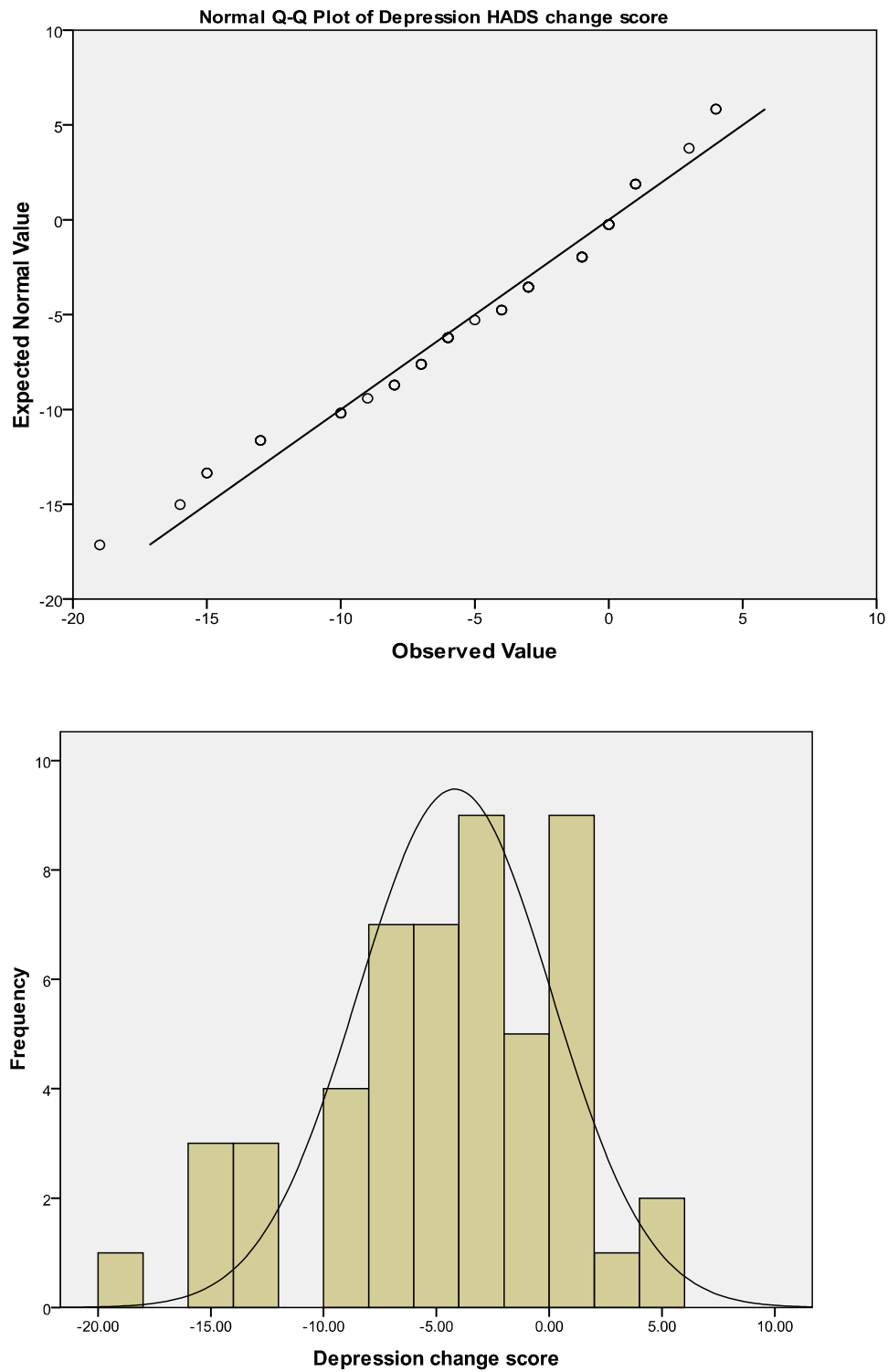


Figure xvi: Q-Q plot and histogram for Depression HADS change score